FINAL

FOCUSED FEASIBILITY STUDY FOR AREAS OF CONCERN 1 AND 7 FORMER SCHENECTADY ARMY DEPOT-VOORHEESVILLE AREA GUILDERLAND, NEW YORK

PREPARED FOR:

U.S. ARMY CORPS OF ENGINEERS

Contract No. DACA87 - 02 - D - 0005

Delivery Order No. 0018

Formerly Used Defense Site Number C02NY0002

Formerly Used Defense Site Project Number C02NY0002-03

PREPARED BY:

PARSONS

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ABBREVIATIONS/ACRONYMS AND GLOSSARY

ACEMC	Albany County Environmental Management Council – regional environmental organization.
AMSL	Above Mean Sea Level – reference for vertical surveys.
AOC	Area of Concern – portion of a site designated for further study.
ARARs	Applicable or Relevant and Appropriate Requirements – Applicable requirements are cleanup standards, standards of control, and other substantive environmental protection requirements promulgated under Federal or state environmental law that specifically address a hazardous substance, pollutant, contaminant, remedial action, location or other circumstance found at a CERCLA site. Relevant and appropriate requirements are promulgated cleanup standards that, while not “applicable”, address situations sufficiently similar to those encountered at a CERCLA site that their use is well suited to the particular site. ARARs are a threshold standard for a CERCLA response action.
atm	atmosphere – unit of measure for air pressure.
BEHP	bis(2-ethylhexyl)phthalate – a semivolatile organic compound.
bgs	below ground surface – a reference point for depth measurements.
C&D	construction and demolition – a type of landfill.
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act – a statute, commonly known as “Superfund,” that provides broad Federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment.
CFR	Code of Federal Regulations – compilation of Federal regulations.
COC	Contaminant of Concern – contaminant suspected to be site-related.
COPC	Contaminant of Potential Concern - contaminant suspected to be site-related.
CPAH	Carcinogenic polycyclic aromatic hydrocarbon – a type of semivolatile organic compound.
DCA	Dichloroethane – a volatile organic compound.
DCE	Dichloroethene – a volatile organic compound.
DERP-FUDS	Defense Environmental Restoration Program for Formerly Used Defense Sites – Federal program that addresses Department of Defense-related hazards posed at former defense sites.
DNAPL	Dense Non-aqueous Phase Liquid – a heavier than water chemical.
DoD	Department of Defense
EIS	Environmental Impact Statement - A document required of federal agencies by the National Environmental Policy Act for major projects or legislative proposals significantly affecting the environment.
EM	Electromagnetic - pertaining to or exhibiting magnetism produced by electric charge in motion.

EPC	Exposure Point Concentration – the value calculated as being the amount of a particular contaminant that a person is exposed to, as part of a risk assessment.
FFS	Focused Feasibility Study – an evaluation of remedial alternatives for a limited number of media or exposure pathways that address hazards posed by a site.
ft^2	square foot – unit of area measurement.
FUDS	A facility or site (property) that was under the jurisdiction of the Secretary of Defense and owned by, leased to, or otherwise possessed by the United States at the time of actions leading to contamination by hazardous substances. By the Department of Defense Environmental Restoration Program (DERP) policy, the FUDS program is limited to those real properties that were transferred from DoD control prior to 17 October 1986.
HHRA	Human Health Risk Assessment – an evaluation of the risk posed to humans from exposure to contaminants.
LLDPE	linear low density polyethylene – a material used for landfill liners.
LRI	Limited Remedial Investigation – a study of the soil, groundwater, surface water, sediment and/or air quality at a site.
LUC	Land Use Control – a means to control or limit certain uses of a site.
m^3	cubic meters – a unit of volume measurement.
MCL	maximum contaminant level – The maximum permissible level of a contaminant in water delivered to any user of a public system. MCLs are enforceable standards.
mg/kg	milligrams per kilogram – unit of measurement for contaminants in soil.
mg/L	milligrams per liter – unit of measurement for contaminants in water.
MNA	Monitored Natural Attenuation - Natural attenuation relies on natural processes to clean up or *attenuate* pollution in soil and groundwater.
MSSL	media-specific screening level – a concentration used to assess water or soil quality.
MW	monitoring well – a hollow pipe drilled into the ground, used to collect groundwater samples.
NCP	National Oil and Hazardous Substances Pollution Contingency Plan - A Plan that provides the regulatory framework for responses under CERCLA.
NEIP	Northeastern Industrial Park – current name for the property that was formerly the Schenectady Army Depot – Voorheesville Area.
NPAH	Noncarcinogenic polycyclic aromatic hydrocarbon – a type of semivolatile organic compound.
NYCRR	New York Code of Rules and Regulations – compilation of New York State regulations.
NYS	New York State – state in which the SADVA is located.

ABBREVIATIONS/ACRONYMS AND GLOSSARY (CONTINUED)

NYSDEC	New York State Department of Environmental Conservation – regulatory body for environmental issues in New York State.
NYSDOH	New York State Department of Health – regulatory body for health issues in New York State.
O&M	operation and maintenance – procedures to ensure an engineering or other site control remains effective.
PAHs	polycyclic aromatic hydrocarbons – PAHs are created when products like coal, oil, gas, and garbage are burned but the burning process is not complete.
PCBs	polychlorinated biphenyls - A group of toxic, persistent chemicals used in electrical transformers and capacitors for insulating purposes, and in gas pipeline systems as lubricant.
PCL	protective concentration level – a concentration of a particular chemical that is protective of human health or the environment.
ppm	parts per million – unit of measure for concentration of contaminants in water, air or soil.
PRAP	Proposed Remedial Action Plan - A plan for a site cleanup that is available to the public for comment.
PRGs	preliminary remediation goals - tools for evaluating and cleaning up contaminated sites. They are risk-based concentrations that are intended to assist risk assessors and others in initial screening-level evaluations of environmental measurements.
RAB	Restoration Advisory Board – group of interested parties that participate in the assessment of a site and in the decision-making for site cleanup.
RAGS	Risk Assessment Guide for Superfund – USEPA guidance for performing risk assessments.
RAO	Remedial Action Objective – a goal that a remedial action is intended to achieve.
RCRA	Resource Conservation and Recovery Act - , A statute enacted in 1976 that promotes the protection of health and the environment. It regulates waste generation, treatment, storage, transportation, and disposal for facilities currently in operation.
RI	Remedial Investigation – a site characterization to assess soil, water and/or air quality.
SADVA	Schenectady Army Depot – Voorheesville Area
SARA	Superfund Amendments and Reauthorization Act - Federal law reauthorizing and expanding the jurisdiction of CERCLA.
SLERA	screening-level ecological risk assessment – an abbreviated form of an ecological risk assessment that assesses the health of plants and animals at a site.
SO_4	sulfate – a salt of sulfuric acid.

ABBREVIATIONS/ACRONYMS AND GLOSSARY (CONTINUED)

SVOCs	semivolatile organic compounds – a class of organic chemicals.
TAGM	Technical and Administrative Guidance Memorandum – a series of guidance documents published by NYSDEC.
TBCs	To Be Considered – Advisories, criteria, or guidance that are not ARARs, but may be useful in developing CERCLA remedies.
TCE	trichloroethene – a volatile organic compound, typically used as a degreaser.
TCEQ	Texas Commission on Environmental Quality – a regulatory body in Texas that has published sediment criteria for protection of human health.
TCLP	Toxicity Characteristic Leaching Procedure – an analytical procedure used to determine of a material meets certain criteria to be classified as hazardous waste.
TPH	Total Petroleum Hydrocarbons – a class of petroleum-related compounds expressed as a concentration for site assessment purposes.
UCL	Upper Confidence Level – a statistical method for estimating the average concentration of a contaminant that a person might be exposed to over time.
µg/kg	micrograms per kilogram – unit of measure for contaminants in soil.
µg/L	micrograms per liter - unit of measure for contaminants in water.
URS	URS Consultants, Inc. – an environmental consulting company.
USACE	United States Army Corps of Engineers - A Federal agency whose authority includes response to releases or threatened releases of hazardous substances at formerly used defense sites.
USEPA	United States Environmental Protection Agency - A Federal agency, whose mission is to protect human health and the environment.
VC	vinyl chloride – a volatile organic compound.
VOCs	volatile organic compounds - are emitted as gases from certain solids or liquids. VOCs include a variety of chemicals, some of which may have short- and long-term adverse health effects. VOCs are emitted by a wide array of products numbering in the thousands. Examples include: paints and lacquers, paint strippers, cleaning supplies, pesticides, building materials and furnishings, office equipment such as copiers and printers, correction fluids and carbonless copy paper, graphics and craft materials including glues and adhesives, permanent markers, and photographic solutions.

EXECUTIVE SUMMARY

INTRODUCTION

This Focused Feasibility Study (FFS) comes under the authority of the Defense Environmental Restoration Program for Formerly Used Defense Sites (DERP-FUDS). The DERP-FUDS program reflects the Department of Defense's (DoD's) commitment to reduce, in a timely and cost effective manner, the risk to human health, safety, and the environment from contamination resulting from past DoD activities. This commitment is ongoing such that the United States Army Corps of Engineers (USACE) would address, at eligible sites with approved projects, any DoD contamination found after planned response actions were completed. This FFS presents an evaluation of remedial alternatives that are based on human health and environmental concerns identified by the remedial investigation in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and FUDS programs.

Under the DERP-FUDS program, only those hazards attributable to former DoD activities can be addressed. Hazards that have been caused by post-DoD use of the site will not be investigated or remediated under the DERP-FUDS program. Operations at the Schenectady Army Depot - Voorheesville Area (SADVA) began in 1941 and continued under DoD for a period of 28 years. SADVA was closed in 1969 and the property was subsequently sold. Since that time, the property has been used as an industrial park, and is now known as the Northeastern Industrial Park (NEIP). The focus of the prior remedial investigation was on identifying land use over time to differentiate site conditions caused by DoD-related activities (during the period 1941 to 1969) from conditions caused by post-DoD activities (during the period 1969 to the present).

The SADVA Areas of Concern (AOC) 1 and 7 are located in the Town of Guilderland, New York, approximately 12 miles northwest of the city of Albany in eastern New York State. The SADVA site is DERP-FUDS site number C02NY0002. This FFS was prepared under project number C02NY000203.

This document has been designated a Focused Feasibility Study in accordance with guidance provided by "*Application of the CERCLA Municipal Landfill Presumptive Remedy to Military Landfills*" (USEPA, 1996a); the referenced document has been applied to the evaluation of remedial alternatives for AOC 1 and 7.

NATURE AND EXTENT OF IMPACTS

AOC 1 is the former U.S. Army Southern Landfill. The Southern Landfill reportedly contains construction and demolition (C&D) debris, industrial and domestic wastes, and wastes from a former burning pit area. The landfill boundaries have previously been determined, and the presence of volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs) and metals in surface soil, subsurface soil and groundwater have been documented, particularly in the southern section. Previous investigations have provided considerable characterization data for this AOC.

During the RI sampling conducted in 2000, the water quality in the main pond adjacent to AOC 1 contained a concentration of bis(2-ethylhexyl)phthalate (BEHP) above the Class C surface water quality standard. A subsequent sample collected from the same location in 2010 did not detect the presence of BEHP in the pond water. The sediments in the main pond and the seasonally wet areas have concentrations of semivolatile organic compounds (SVOCs), pesticides, polychlorinated biphenyls (PCBs) and metals above New York State Department of Environmental Conservation (NYSDEC) sediment quality criteria. A qualitative biological assessment of the wildlife in and around the pond, and a macroinvertebrate community analysis of the pond found no significant impacts on the quality or diversity of wildlife. The pond macroinvertebrate community was found to be slightly impaired, due to the monotonous (uniform) nature of the man-made pond bottom.

A groundwater plume containing VOCs continues to be present in the southern portion of the landfill; however, VOC concentrations are decreasing with time. The groundwater plume is not migrating offsite. A human health risk assessment (HHRA) was completed for AOCs 1 and 7 combined, and found that unacceptable human health cancer risks are associated with the groundwater and surface water in the main pond at AOC 1, if these were to be used as sources of drinking water. However, the groundwater and surface water are located within private property, and the property owner has agreed to place an environmental easement to prohibit the use of groundwater for drinking purposes.

After the HHRA was completed, NYSDEC promulgated new risk-based soil cleanup objectives under Title 6 New York Codes Rules and Regulations Part 375. Subsequent to the HHRA, NYSDEC requested that soil concentrations at AOC 1 be compared to the Part 375 soil cleanup objectives. Part 375 industrial land use cleanup objectives were exceeded for polycyclic aromatic hydrocarbons (PAHs) and/or arsenic at 7 soil sample locations within the limits of AOC 1. Therefore, although the HHRA concluded there was no soil risk, the subsequent application of the new Part 375 risk-based soil cleanup objectives identified soil samples that exceed the Part 375 industrial land use criteria.

AOC 7 is a triangular-shaped disposal area located near the southeastern end of the SADVA and west of AOC 1. This area was formerly bounded by railroad tracks on three sides. Aerial photographs from the early 1940s indicate the presence of a possible dump in this triangular area, as do geophysical anomalies from previous investigations.

A small amount of fill was encountered in test pits excavated at AOC 7. The fill consisted of railroad ties, charred wood, angular gravel, and glass bottles. Metals concentrations slightly above background were widespread in surface soil and subsurface soil. BEHP was detected above the NYSDEC Class GA groundwater standard in all five groundwater samples in July/August 2000 and in four of five samples collected in 2004. The source(s) of BEHP detected in AOC 7 and elsewhere at the site are unknown, but the groundwater flow pattern suggests the source(s) are upgradient (east-northeast) of AOC 7. Metals concentrations in the AOC 7 groundwater samples collected from temporary wells in 2000 may have been affected by high turbidity. Permanent wells were installed in 2004 to improve the integrity of groundwater samples. With the exception of iron in GW02, the 2004 metals concentrations were below the upgradient and Class GA concentrations. All soil sample concentrations from AOC 7 are below the Part 375 soil cleanup objectives for industrial land use.

The AOC 7 area has been adequately characterized. The soil and groundwater characterization data, and the visual evidence of the extent of fill provided by the test pit excavations, provides sufficient information to characterize AOC 7. A quantitative HHRA has been performed for AOC 7 and AOC 1 combined. The two AOCs were combined because they are nearly contiguous. The unacceptable cancer risks posed by groundwater and surface water are primarily related to constituent concentrations found at AOC 1, assuming that these water sources would be used for drinking water purposes. The identified human health risks do not appear to be specifically related to AOC 7. A feasibility study was recommended for AOCs 1 and 7 to evaluate the range of remedial alternatives that address the human health risks at the site, and to support the decision as to whether remedial action is necessary.

FFS OBJECTIVES

The objectives of the FFS are:

1) To assess remedial action alternatives for controlling the human health risks posed by the groundwater and surface water found in AOC 1.
2) To work with the NYSDEC and the New York State Department of Health (NYSDOH) to develop an acceptable remedy for AOCs 1 and 7, if necessary.

FFS RESULTS

- Preliminary remediation goals (PRGs) for AOC 1 were identified.
- Remedial action technologies applicable to AOC 1 were identified and screened based on implementability, effectiveness, and relative cost. Select remedial action technologies were retained for development of remedial action alternatives.
- Four remedial action alternatives were developed and evaluated based on the following CERCLA criteria: protection of human health and the environment; compliance with applicable or relevant and appropriate requirements (ARARs); long-term effectiveness and permanence; implementability; reduction of toxicity, mobility, or volume; short-term effectiveness; and cost. The four alternatives are:
    - Alternative 1 No Action;
    - Alternative 2 Groundwater Monitored Natural Attenuation (MNA)/Land Use Controls (LUCs);
    - Alternative 3 Groundwater MNA/LUCs/Landfill Cap-Cover; and
    - Alternative 4 Chemical Oxidation of Groundwater/Landfill Cap-Cover/ LUCs.

SECTION 1

INTRODUCTION

1.1 PROJECT AUTHORIZATION

1.1.1 This FFS comes under the authority of the DERP-FUDS. Authority for the DERP-FUDS program is derived from the following laws: CERCLA, as amended by the Superfund Amendments and Reauthorization Act (SARA) (codified at 42 U.S.C. §§ 9601-9675); and the Defense Environmental Restoration Program (codified at 10 U.S.C. §§ 2700-2710). The NEIP is the current name of the SADVA site. The DERP-FUDS site number is C02NY0002.

1.1.2 Under the DERP-FUDS program, only those hazards attributable to former DoD activities can be investigated and addressed. Hazards which have been caused by post-DoD use of the site cannot be investigated or remediated under the DERP-FUDS program. Operations at SADVA began in 1941 and continued for a period of 28 years. SADVA was closed in 1969 and the property was subsequently sold. Since that time, the property has been used as an industrial park, and is now known as the NEIP. The former US Army Southern Landfill is located in the southeast portion of the SADVA, and is designated AOC 1. AOC 7 is a triangular-shaped disposal area located between AOC 1 and the C&D Landfill (AOC 4). AOCs 1 and 7 are the subject of this FFS.

1.2 FFS OBJECTIVES

1.2.1 The objectives of this FFS are as follows:

1) To assess remedial action alternatives for controlling the human health risks posed by the groundwater and surface water found at AOC 1.
2) To work with the NYSDEC and the NYSDOH to develop an acceptable remedy for AOCs 1 and 7, if necessary.

1.2.2 This FFS applies the USEPA's *CERCLA Municipal Landfill Presumptive Remedy to Military Landfills* (Directive No. 9355.0-67FS) based on the guidance for applicability found in the directive (USEPA, 1996a). Applicability includes low-level risks; heterogeneity of materials; lesser quantities of hazardous wastes compared to non-hazardous wastes; and injection wells, surface impoundments, and waste piles are not included. The Containment Presumptive Remedy includes landfill containment and source area groundwater control. No soil excavation or soil remediation alternatives are included in the presumptive remedy.

1.2.3 Once the USACE recommends a remedial alternative, a Proposed Remedial Action Plan (PRAP) will be completed and submitted for public and regulatory review and comment. Once the public comment period has closed, and all comments have been considered, a Decision Document that specifies the cleanup action for the site will be issued.

1.3 SITE LOCATION

The SADVA is located south of New York State (NYS) Route 146 and east of County Route 201, approximately one-quarter mile southeast of the Village of Guilderland Center, New York. The site is located approximately 3 miles north of Voorheesville and 3 miles west of Guilderland (see Figure 1.1).

1.4 SITE SETTING

1.4.1 The SADVA originally included approximately 650 acres, most of which was surrounded by a chain-link fence topped with barbed wire (Figure 1.2). The SADVA was primarily a warehouse and storage complex set on leveled and paved grounds. The area south of the SADVA warehouse complex borders NYSDEC Wetland V-19 and is the location of AOC 1 (U.S. Army Southern Landfill) and AOC 7 (Triangular Disposal Area). Black Creek enters the SADVA west of AOCs 1 and 7 and flows northward along the eastern side of the SADVA. A perimeter ditch collects water from the southern and western sides of the SADVA and discharges into Black Creek. The Town of Guilderland Central School is located adjacent to the northwest portion of the SADVA on School Road.

1.4.2 SADVA is situated in an area of generally low relief, at the base of the Helderberg Mountains, at an elevation of approximately 320 feet above mean sea level (AMSL). The SADVA is bordered by Route 201 on the west and south, by Route 146 on the north, by the Guilderland High School on the northwest, and by Black Creek and railroad tracks to the east. Most of the SADVA is surrounded by a chain-link fence topped with barbed wire. SADVA lies within the Normans Kill drainage basin, an area of about 180 square miles (Buttner, 1997). Most of the SADVA is paved and consists of warehouses and open storage areas. The dominant surface water features in the vicinity are Black Creek, the Bozen Kill, the Normans Kill and the associated Watervliet Reservoir. Soils at the SADVA are classified as urban land (Ur), loamy Udorthents (ug), and Wayland silt loam (Wo) according to the Soil Survey of Albany County (USDA, 1983).

1.4.3 Black Creek (AOC 8) is the primary drainage feature in the vicinity of SADVA. Black Creek drains a large part of the site vicinity, and passes through the site. Surface water drainage over the mostly impervious surface area of SADVA is diverted into Black Creek, which has a drainage basin of approximately 25 square miles (Buttner, 2000). From its headwaters at the Helderberg Escarpment, Black Creek flows east, then north into the south end of SADVA. It flows in a man-made channel along the east side of the SADVA before rejoining the main channel at the north end of the site. A perimeter drainage ditch collects surface water runoff from the southern and western sides of the site and directs it to Black Creek. These man-made ditches and channel were excavated at the time the SADVA was constructed. After flowing north out of the SADVA, Black Creek meanders toward the northwest before discharging into the Bozen Kill, approximately 2 miles from the site. The Bozen Kill empties into the Watervliet Reservoir, which is within the Normans Kill drainage area. Downstream of the reservoir, the Normans Kill flows southeast approximately 5 miles before it empties into the Hudson River. The New York State Bureau of Watershed Management and the NYSDEC have classified the section of Black Creek adjacent to SADVA as a Class C stream. Class C waters are suitable for fishing and fish propagation and primary and secondary recreation, even though other factors may limit the use for that purpose.

1.4.4 Most residences in the site vicinity are served by municipal drinking water; however, the homes east of SADVA are still on private residential wells. The primary source of the municipal water supply is the Watervliet Reservoir, which is located approximately 2 miles north of SADVA. Public water supply lines run along Route 146, between Route 201 and Ostrander Road, and along Route 201 as far as the railroad tracks west of the intersection of Ostrander Road and Route 201. The municipal water supply lines extend approximately 1,500 feet west along Meadowdale Road (Route 202). Homes west and southwest of SADVA along the rest of Meadowdale Road, Frederick Road, and Hawes Road use private wells, as do homes northwest of the intersection of Routes 201 and 146 (Town of Guilderland, 2000). The NEIP and the Guilderland Central School are supplied with potable water by the Town of Guilderland Water Department. However, the school has used wells to irrigate the athletic fields and school grounds.

1.5 SITE HISTORY

1.5.1 The U.S. Army Southern Landfill, located in the southeast portion of the SADVA, is designated AOC 1. AOC 7 is a triangular-shaped area located on dry, open ground between existing and former railroad tracks at the south end of SADVA (Figure 1.2).

1.5.2 A 1980 report by the Albany County Environmental Management Council (ACEMC) prompted environmental concern at the SADVA (ACEMC, 1980). This report described aerial photographs showing excavation and disposal activities that occurred in the southeastern areas of the SADVA. The aerial photos indicated activity prior to 1942 and extending through 1968, based on 1942, 1952, 1963, and 1968 aerial photographs. The landfill appeared to be inactive between 1973 and 1995, based on 1973, 1978, 1982, 1986, and 1995 aerial photographs. It is not possible to document activities conducted at the U.S. Southern Landfill during time gaps in the aerial photograph coverage. Most excavation and disposal activities occurred during the time SADVA was operated by DoD. However, according to a report by the U.S. Army Toxic and Materials Agency (1980), no written records were found that would indicate that disposal of wastes occurred at the former depot. Written waste disposal records are important for helping to assess responsibility for an AOC. However, it is not unusual for there to be few, if any, written records of waste disposal for sites of this age and type. For this reason, historical aerial photos are an important tool to help identify periods of site disturbance that could correspond to waste disposal activities.

1.5.3 The Final Archival Search Report (EAEST, 2003) and the ACEMC report (ACEMC, 1980) described AOC 7 based upon the interpretation of aerial photographs. The aerial photograph analysis completed by Albany County included a small area described by the County as a 2-acre dump just west of the U.S. Army Southern Landfill, in the southern portion of SADVA. Based on a review of a 1940s aerial photograph, the County noted that a 2-acre disposal area was located in a triangular junction of railroad tracks in this area. No storage containers or debris were noted in this area. A 1952 aerial photograph showed the area was inactive and partially vegetated. A review of aerial photographs from 1963, 1968, and 1974 found some of the tracks had been removed and the site was partially vegetated open space. The site was inactive in the 1977 aerial photograph, but the tracks along the southern and eastern sides of the triangular area had been removed and the area was surrounded by woods on all sides. No storage containers or debris were noted. An August 1941 drawing, last revised December 1952, noted two borrow pits in the vicinity of this area which may have provided soil cover for the dumping area, or for the U.S. Army Southern Landfill.

1.5.4 The site background and previous investigations were discussed in detail in the Remedial Investigation Report for SADVA (Parsons, 2007). The following reports describe investigations that have previously characterized AOCs 1 and 7:

1. "Report of Findings Environmental Liability Review Northeastern Industrial Park" for the Galesi Group (ERM-Northeast, 1990).
2. Phase II Investigation for the U.S. Army Corps of Engineers (OHM Remediation Services, 1991).
3. "Final Limited Remedial Investigation Report, Former Voorheesville Army Depot, U.S. Army Southern Disposal Landfill, Guilderland, New York" (Malcolm-Pirnie, 1997).
4. Preliminary Contamination Evaluation (Metcalf and Eddy, Inc. 1988).
5. Geophysical Investigation of AOC 7 (Quantum Geophysics, 1997).

Results of these investigations are described in greater detail in Section 1.6 of this report as applicable.

1.5.5 In 1990, ERM-Northeast conducted investigations at AOC 1 for the Galesi Group, owners of NEIP. Buried drums, C&D debris, ash, metal debris, chemical solvent odors, floating product, and oil-saturated sand above the water table were observed in test pits. ERM-Northeast recommended quantification of the buried wastes. The 1990 ERM-Northeast report stated that concentrations of arsenic, copper, and nickel exceeded NYSDEC criteria for sediments. In 1991, OHM Remediation Services Company conducted a Phase II investigation for the USACE. Contaminants detected in soils included acetone, chlorobenzene, toluene, xylenes, trichloroethene (TCE) and its derivatives, and PAHs. Chlorinated hydrocarbons, fuel-related analytes, and pesticides were only present in subsurface soil samples from the southern portion of the landfill, just south of the pond. The highest concentrations of PAHs and total petroleum hydrocarbons (TPH) were observed in samples collected from this same area. Contaminants detected in groundwater included acetone, ethylbenzene, xylenes, TCE and its derivatives, and several metals. The 1990 and 1991 investigations fully characterized the subsurface materials within the landfill. The site is listed on the New York State Registry OF Inactive Hazardous Waste Sites as a Class 2 site.

1.5.6 The USACE developed a Scope of Work dated April 27, 1995 for a Limited Remedial Investigation/Feasibility Study (LRI/FS) to be performed at the U.S. Army Southern Landfill under USACE Contract No. DACA31-94-D-0017 by Malcolm Pirnie. Malcolm Pirnie subcontracted URS Consultants, Inc. (URS) to conduct field investigations during 1996 to assess the migration pathways and to evaluate alternative remedial actions as per the Scope of Work.

1.5.7 The 1997 LRI report concluded the following for AOC 1:

- The extent of the landfill was determined by excavating test trenches (Figure 1.3).
- PAHs and metals were detected above NYSDEC criteria in surface soils. The extent of PAHs, arsenic, chromium, and silver contamination in surface soils was reported to be localized.
- The horizontal extent of groundwater contamination was limited to an area of approximately 2 acres within the southern portion of the landfill. The contamination consisted chiefly of chlorinated hydrocarbons (i.e., TCE and its derivatives) and, to a lesser degree, benzene, acetone, arsenic, and lead. The contamination was reportedly restricted to the shallow perched water table. Since monitoring well (MW) ACE-2 contained high VOC concentrations and the adjacent bedrock well AMW-2 did not contain any contamination, the bedrock aquifer was reportedly not impacted.
- The historical surface water analytical data indicated virtually no impact to surface water from the landfill. The VOCs detected previously in the pond at the site were not detected during the LRI sampling.

1.5.8 The 1988 Metcalf and Eddy, Inc. investigation at AOC 1 consisted of a preliminary contamination evaluation. The evaluation concluded that contamination existed in groundwater and recommended further investigation to determine the extent of groundwater contamination.

1.5.9 In 1991, the U.S. Army Corps of Engineers retained OHM Remediation Services to conduct a field investigation of SADVA, which included an electromagnetic (EM) survey and monitoring well installation at AOC 7. The EM survey found one major anomaly that extended out of the investigation grid area toward the U.S. Army Southern Landfill. The anomaly indicated the presence of significant amounts of metal similar to a pipeline; however, the facility drawings showed no underground utilities in this area. As a result of this finding, OHM installed a shallow well (2AMW-7) between AOC 1 and AOC 7 and collected soil and groundwater samples. Split-spoon samples revealed silty soil containing some cinders from 0 to 2 feet below ground, silty-clay with rubber tire fragments from 2 to 4 feet, followed by clay and silty clay layers containing gravel down to 15 feet, and then sand and gravel down to 21.5 feet, where auger refusal occurred. The soil samples from 2AMW-7 contained elevated levels of semi-volatile organic compounds (SVOCs) and various metals (see Figure 1.5); the groundwater sample had a small amount of methylene chloride and xylenes.

1.5.10 In April 1997, Quantum Geophysics, Inc. completed a geophysical investigation under contract to USACE. The purpose of the investigation was to: 1) locate large metallic or other objects in the subsurface, 2) identify the horizontal and vertical boundaries of the former disposal areas, particularly the depth to and/or thickness of fill layers, 3) locate the shallow aquifer and evaluate the continuity of any confining layers, and 4) determine if a contaminant plume is present. The investigation incorporated an EM61 metal detector survey, an EM31 ground conductivity survey, and an electrical resistivity imaging survey. Only about 0.5 acres of the 2-acre Triangular Disposal Area could be surveyed because of extensive brush cover. Three probable disposal areas were identified by Quantum in the western corner of AOC 7. Those areas appeared to contain buried metallic debris and a probable disposal area. The water table was estimated to be at a depth of 6.5 to 8 feet below ground. The geophysical investigation found no confining layers or contaminant plumes in the resistivity profile for the western corner. Four probable disposal areas were identified along the northeastern side. Two areas were attributed to buried metallic debris and two areas were attributed to nonmetallic conductive material. Geophysical data showed no evidence of the water table or a contaminant plume along the northeastern side. The resistivity survey found no apparent confining layers and predicted the top of rock may be at depths between 40 to 50 feet below ground surface.

1.6 NATURE AND EXTENT OF CONTAMINATION

Soil and waste materials at AOC 1 were characterized in 1990 and 1991 by ERM and OHM, respectively. URS Consultants entered into a subcontract with Malcolm Pirnie to conduct a Limited Remedial Investigation (LRI) at AOC 1 in 1996 (Malcolm Pirnie, 1997). Soil, groundwater and surface water quality were analyzed during the LRI. Test trenches were excavated during the LRI to determine the extent of fill at AOC 1. An additional remedial investigation and subsequent data gap investigations for soil, groundwater, sediment and surface water at AOC 1 and AOC 7 were conducted by Parsons between 2000 and 2006. A summary of the nature and extent of contamination at AOC 1 and AOC 7 resulting from an analysis of the remedial investigations are presented in this section.

1.6.1 Soil Investigations

1.6.1.1 AOC 1

1.6.1.1.1 Eighteen test trenches were excavated during the 1996 LRI to determine the areal extent of fill at AOC 1. Test trenches were excavated along lines radiating outwards from fill areas across the north, east, south and west margins of the site. Individual test trenches consisted typically of a series of test pits excavated along bearings. Individual test pits were excavated only to the minimum depth (0 to 5 feet) required to determine the nature of the subsurface material. Figure 1.3 depicts the limits of the landfill at AOC 1.

1.6.1.1.2 In 1991, OHM Remediation Services Company conducted a Phase II investigation. Contaminants detected in soils included metals, chlorobenzene, toluene, xylenes, TCE, and PAHs (OHM Remediation, 1991). The highest concentrations of contaminants were observed in samples collected from the southern portion of the landfill. The 1991 landfill material characterization did not include a RCRA Toxicity Characteristic Leaching Procedure (TCLP) analysis for waste characterization. Analysis of samples collected during this investigation indicated concentrations of total PAHs and/or arsenic exceeded the current (2009) Part 375 industrial land use soil cleanup objectives. Total PAHs exceeded Part 375 industrial land use cleanup objectives at four locations: 2AMW-7 (4.5 ft depth); B-2 (3 ft); AMW-2 (depth unknown); and B-3 (3-5 ft). Arsenic exceeded Part 375 Part 375 industrial land use soil cleanup objectives at three locations: 2AMW-7 (4.5 ft); AMW-4 (4-6 ft); and B-3 (3-5 ft). A summary table of results (Table 1-5) and a figure (Figure 4-1) showing sample locations and results that exceed the Part 375 industrial criteria have been included in Appendix A.

1.6.1.1.3 Four surface soil samples were collected at AOC 1 in 1996 within the landfill to characterize the landfill cover material, and two surface soil samples were collected outside the fill areas to identify background soil locations. Samples were analyzed for VOCs, SVOCs, select metals (arsenic, chromium, silver, lead, and hexavalent chromium), and TPH. As with the subsurface soils, the extent of contamination in surface soils is mostly localized in the southern portion of the landfill and includes SVOCs (mostly PAHs) and metals (arsenic, chromium, and silver). These soil sample results are summarized in a table (Table A-1) and a figure (Figure 4-2) in Appendix A.

1.6.1.1.4 Samples analyzed from two locations during the 1996 investigation contained VOC concentrations greater that the current Part 375 unrestricted land use soil cleanup objectives. The VOCs were acetone at location SS-02-12,18, and methyl ethyl ketone and total xylenes at SS-04 -12,18. Both samples were collected 1-1.5 feet below ground surface.

1.6.1.1.5 One sample location (SS-04-0,18) contained SVOC concentrations greater than the current Part 375 cleanup objectives. Benzo(a)anthracene, benzo(b)fluoranthene, chrysene, and indeno (1,2,3-cd)pyrene concentrations were above the Part 375 residential soil cleanup objectives. Additionally, the concentration of benzo(a)pyrene was above the Part 375 industrial soil cleanup objective (see Figure 3.8 in Appendix A).

1.6.1.1.6 Sample location SS-04-0,18 also had concentrations of chromium III and chromium VI that exceeded the Part 375 residential land use criteria.

1.6.1.2 AOC 7

1.6.1.2.1 As part of the remedial investigation (RI) conducted by Parsons, surface and subsurface soil samples were collected at AOC 7 from test pits that were excavated where ground conductivity anomalies were previously identified. Samples for laboratory analysis were collected at the surface, within the fill zone, and immediately beneath the fill zone and were analyzed for VOCs, SVOCs, pesticides/PCBs, and metals. The objectives were to characterize surface soils for direct contact risks, characterize the fill material, assess the contaminants present, and identify the lower extent of contamination by sampling beneath the fill zone. Surface soils and subsurface soils (from within the screened interval) were also sampled in three monitoring well borings. These samples were analyzed for SVOCs (including bis(2-ethylhexyl)phthalate, or BEHP). Soil sample results are included in Appendix A (Table A-1), and sample locations are shown on Figure 1.4, found at the end of this section..

1.6.1.2.2 Test pits were excavated through the fill material and into “clean” material below, or into the water table at each of four locations. The test pits were dug to depths ranging from 4.5 to 5 feet. Fill material was encountered within the upper 3 feet of soil in two test pits at AOC 7. Fill thicknesses ranged from 0.8 feet to 1.5 feet, and contained railroad ties, charred wood, dark angular gravel, and glass bottles.

1.6.1.2.3 The concentration of zinc was above the Part 375 unrestricted land use soil cleanup objective at one location (SB-04A) at a depth of 0.2 ft. Additionally, one sample (AOC7-SB03A) had concentrations of 4,4’-DDT and Aroclor 1260 that exceeded the Part 375 residential land use soil cleanup objectives at a depth of 0.2 ft.

1.6.1.2.4 One location (SD-SS-GW02) exceeded Part 375 soil cleanup objectives for seven SVOCs in surface soils (0-0.5 ft). The concentration of benzo(k)fluoranthene exceeded the Part 375 unrestricted land use soil cleanup objective. The concentrations of benzo(a)anthracene, benzo(b)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene exceeded the Part 375 residential land use cleanup objectives. The concentration of benzo(a)pyrene exceeded the Part 375 industrial land use soil cleanup objective (Figure 1.4). This location was intended to serve two characterization purposes; it is a downgradient well location for AOC 7 and is a soil sampling location for AOC 4 (the C&D Landfill). SD-SS-GW02 is approximately 500 feet west of AOC 7. Given that the groundwater sample from this well did not contain SVOC concentrations above the Class GA groundwater standards, and the soil sample is more indicative of the conditions around AOC 4, these soil sample results are not considered relevant to AOC 7.

1.6.1.2.5 In summary, Part 375 industrial land use cleanup objectives were exceeded for PAHs and/or arsenic at 7 soil sample locations within the limits of AOC 1. Benzo(a)pyrene is in excess of the Part 375 industrial land use soil cleanup objective at SD-SS-GW02; however, that location is 500 feet west of the limits of AOC 7 and is associated with AOC 4.

1.6.2 Groundwater Sampling

1.6.2.1 AOC 1 Groundwater Sampling and Analytical Results

1.6.2.1.1 The shallow perched aquifer and bedrock aquifer at AOC 1 were assessed and evaluated as part of the 1996 LRI. During the LRI, groundwater samples were collected from 12 wells and analyzed for VOCs and metals. Results from the investigation indicated that the horizontal extent of groundwater contamination was restricted to the shallow perched water table, and was limited to an area of approximately 2 acres within the southern portion of the landfill. The contamination consisted chiefly of chlorinated hydrocarbons (TCE and its derivatives) and, to a lesser degree, benzene, acetone, arsenic, and lead.

1.6.2.1.2 The RI conducted by Parsons included a hydrogeologic investigation to determine whether there is hydraulic communication between the shallow perched aquifer and the deeper bedrock aquifer. Three monitoring wells were installed along the east fence line to determine whether there was contaminant migration to the east that might be leaving the property. Additional groundwater sampling was conducted to determine if natural attenuation of the groundwater plume is occurring.

1.6.2.1.3 The hydraulic communication between the shallow aquifer and bedrock was not evaluated by pump test analysis as planned, because insufficient water was encountered in well AMW-11 and replacement well GW-11R. No VOCs were detected in AMW-11 prior to abandoning the well. Toluene and acetone were detected in replacement well GW-11R, but at levels below Class GA groundwater standards. The presence of acetone and toluene in well GW-11R suggests there may be a connection between the bedrock and shallow aquifers at that location. However, any connection between the two zones is restricted by the presence and size of bedrock fractures that allow groundwater to flow into and through the bedrock. At well GW-11R, there was minimal groundwater available in the bedrock. The overburden materials between the shallow aquifer and the bedrock are a dense glacial till with silt and clay. The deeper groundwater sample from nearby deep well AMW-2 did not contain any VOCs during the

2000 sampling event (Figure 1.5 shows only those analytes that exceed the Class GA groundwater criteria). The lack of VOCs in the deeper well suggests the VOCs in the shallow zone have not migrated downward at that location. Groundwater elevations measured in well pair ACE-2 (shallow) and AMW-2 (deep) indicate that groundwater flows from the bedrock upward toward the overburden in the area of this well pair, supporting the conclusion that contaminants in the shallow aquifer in the region around ACE-2 are not migrating downward.

1.6.2.1.4 Three shallow wells were installed along the eastern property boundary at AOC 1 to assess whether contaminants were moving offsite to the east, as indicated by groundwater flows maps for the site (refer to Figures 3.6a, 3.6b and 3.6c in Appendix A). Two of the wells were dry at the time groundwater sampling was conducted in December 2004. Very tight glacial till was encountered during the drilling of these wells. The lack of water in these wells indicates shallow groundwater in the vicinity of the wells is not migrating to the east from the AOC 1 landfill. The three wells were sampled in 2006, and no VOCs were detected (Figure 1.5). Results for the wells indicated the VOC contaminants detected elsewhere in the landfill are not migrating offsite to the east.

1.6.2.1.5 Eleven groundwater monitoring wells in the vicinity of AOC 1 were sampled in June 2006 as part of the RI to provide an updated characterization of the VOC plume at AOC 1. Four of the wells (two within the plume and two outside of the contaminated area) were analyzed for natural attenuation parameters to assess whether natural attenuation processes are ongoing in the aquifer. Results indicate that the VOC plume has decreased in concentration since 2000, as seen in Figure 1.5. The source area concentrations of chlorinated VOCs at ACE-2 have decreased by about 50 percent over the past six years, from 1,560 µg/L to 734 µg/L, suggesting that the chlorinated VOCs may be naturally attenuating. The following water chemistry parameter comparisons between wells located inside the plume and outside the plume indicate that natural attenuation is occurring within the plume:

- Ethene and ethane concentrations in wells ACE-2 and AMW-1 (areas of highest contamination) are higher than in the wells outside the plume;
- Total alkalinity in wells ACE-2 and AMW-1 are higher than in the wells outside the plume;
- Methane concentrations in ACE-2 and AMW-1 are higher than in the wells outside the plume; and
- Sulfate (SO_4) concentrations are lower in ACE-2 and AMW-1 than in the wells outside the plume.

1.6.2.2 AOC 1 Groundwater Flow

1.6.2.2.1 The landfill creates a groundwater mound in which groundwater flows laterally away from the center of the landfill. Therefore there are no true upgradient locations in the im mediate vicinity of the landfill. Localized groundwater flow is from the landfill toward the pond at AOC 1, based on groundwater elevations measured during each of the rounds of water level monitoring during the RI. The VOCs detected in groundwater in June 2000 were not detected in surface water samples collected from the pond (SW04 and SW06) in July 2000 (see subsection 1.6.5).

1.6.2.2.2 Groundwater elevations were compared in shallow and deep well pair ACE-2 and AMW-2 on each monitoring date. There is an upward hydraulic gradient at this location. The upward hydraulic gradients indicate the potential for groundwater movement is from the bedrock upward to the overburden, and therefore downward migration of contaminants is not likely. There is no evidence that dense nonaqueous phase liquids (DNAPL) exist. DNAPLs could migrate opposite to the direction of groundwater flow.

1.6.2.3 AOC 7 Groundwater Sampling Strategy and Results

1.6.2.3.1 A groundwater sampling plan was designed as part of the RI to assess groundwater quality upgradient, within, and downgradient of AOC 7. Three groundwater samples were collected in 2000 from temporary wells installed in borings at AOC 7 to characterize shallow groundwater at AOC 7. Nearby monitoring wells 2AMW-5 and 2AMW-7 were also sampled to characterize shallow groundwater in the vicinity of AOC 7. Groundwater samples were analyzed for TCL VOCs, SVOCs, pesticides, PCBs, and TAL metals. Based on the groundwater results collected in 2000, three permanent monitoring wells were installed in 2004. GW01 was installed at an upgradient location at AOC 1. GW02 was installed about 500 feet downgradient of AOC 7, near building S-69 to assess AOC 7 impacts and those from a former septic system at building S-69 (considered part of AOC 4). GW03 was installed downgradient of AOC 7. Samples were analyzed for SVOCs and TAL metals, which were the only analyte groups detected in the 2000 temporary well samples.

1.6.2.3.2 No VOCs, pesticides or PCBs were detected above NYSDEC Class GA groundwater standards during either sampling event (Figure 1.6). BEHP was the only SVOC detected at AOC 7 above Class GA groundwater standards and upgradient concentrations during both sampling events. The laboratory analytical results were independently validated and there is no evidence to suggest the presence of BEHP is the result of laboratory or field sampling contamination. The 2004 sample results from the permanent wells suggest the BEHP may be originating from a source upgradient (east/northeast) of AOC 7. The upgradient concentrations in 2AMW-5 and 2AMW-7 were in the range of 22 to 27 ug/l. The downgradient concentrations in GW-02 and GW-03 ranged from 7.6 to 16 ug/l. There is no statistical analysis available to assess whether BEHP is site-related due to the limited number of data points. However, the groundwater flows maps for AOC 7 suggest that wells 2AMW-5 and 2AMW-7 are upgradient of AOC 7 but downgradient of AOC 1 (refer to Figures 3.34a, 3.34b and 3.34c in Appendix A). The landfill at AOC 1 is a possible source for the BEHP detected at AOC 7. BEHP has been detected in groundwater at AOC 1 as well.

1.6.2.3.3 Up to 15 metals were detected above Class GA groundwater standards; however 11 of these only occurred in the 2000 sample collected from temporary well HP02. The high metals concentrations are likely due to the high turbidity of that sample. In the 2004 samples from monitoring wells, the only metal that exceeded Class GA criteria and upgradient concentrations was iron in one well (GW-02).

1.6.2.3.4 Monitoring wells GW-1 and GW-3 were sampled in 2006 and analyzed for TCL VOCs to determine if VOCs are present in the groundwater in the vicinity of AOCs 1 and 7. Concentrations of all VOCs in both wells were below reporting limits.

1.6.2.4 AOC 7 Groundwater Flow

Groundwater flow is generally to the west-southwest toward Black Creek and the adjoining wetlands (refer to Figures 3.34a, 3.34b and 3.34c in Appendix A). A similar trend was observed during the RI in both the July 2000 and December 2004 measurements. The groundwater elevations ranged from 322.92 ft AMSL in GW01 on December 7, 2004 to 313.41 ft AMSL in GW02 on July 22, 2004.

1.6.3 Sediment Sampling

1.6.3.1 AOC 1 Sediment Sampling and Analytical Results

1.6.3.1.1 Sediment samples were collected in the pond between the U.S. Army Southern Landfill and the railroad tracks for chemical characterization as part of the RI. Samples SD-04 through SD-07 were collected in 2000, and samples SD-08 through SD-12 were collected in 2004. Shallow (0 to 0.2 feet) sediment samples were collected at SD-04 through SD-07, and shallow and deep (0.5 to approximately 0.75 feet) samples were collected at SD-08 through SD-12. Water depths in the pond ranged up to 2.5 feet. The samples collected in 2000 were analyzed for TCL VOCs, SVOCs, pesticides, PCBs, and TAL metals. The 2004 samples were analyzed for the same parameter list as in 2000, with the exception of VOCs, since no VOC concentrations exceeded criteria in the 2000 sample set. Sample locations and results are shown on Figure 1.7.

1.6.3.1.2 PAHs, pesticides, PCBs and up to 10 metals were present above NYSDEC sediment quality criteria and background concentrations in sediments from the main pond. The sediment is about 0.75 feet thick; the upper 0.5 feet tends to have the highest concentrations of detected analytes.

1.6.3.1.3 The PAHs, PCBs, and metals detected in the sediments may have originated from contaminated soils and fill adjacent to the pond, or from contaminated fill deposited in the edge of the pond. Many of the same compounds were detected in both the landfill soils/fill and the sediments, and at comparable concentrations. Surface runoff over the landfill could have carried PAHs, PCBs and metals to the pond via contaminated soil suspended or entrained in the surface runoff. The compounds detected above criteria in the sediment samples were not detected above criteria in the surface water samples, indicating these constituents are not adversely impacting surface water quality.

1.6.3.1.4 Sediment data from the pond at AOC 1 have been compared to the sediment data for AOC 8 (Black Creek) to assess whether the pond sediments have impacted sediment quality in Black Creek. The comparison leads to the following observations:

1) AOC 1 pond sediments are characterized by high concentrations of PAHs, the pesticides 4-4'-DDD, 4-4'-DDT, and 4-4'-DDE, PCBs, and a variety of metals.

2) AOC 8 sediments from Black Creek have very low or not detectable concentrations of PAHs and pesticides. Exceptions are PAHs in SD-19 located upstream of the AOC 1 pond, and SD-31 and SD-32 which are located downstream of the SADVA,

near the creek crossing with School Road. Those PAHs are thought to be associated with exhaust from vehicle traffic in that area.

3) For metals, lead concentrations are very high in the AOC 1 pond (1,000 to 2,000 parts per million), whereas in Black Creek the lead concentrations are 2 to 3 orders of magnitude less and only slightly above the NYSDEC sediment criterion. Copper concentrations in the AOC 1 pond are 10 times greater than the NYSDEC sediment criterion; in Black Creek, copper concentrations are only slightly above the sediment criterion.

4) Overall the sediments in the AOC 1 pond do not appear to have impacted the sediment quality in Black Creek. That observation is consistent with the fact that water and suspended sediment flowing from the AOC 1 pond has to flow diffusely through a wetland area before reaching Black Creek. It is likely the wetland would allow suspended sediment flowing out of the pond to settle out before reaching Black Creek.

1.6.4 Surface Water Results

1.6.4.1 AOC 1 Surface Water Sampling and Analytical Results

1.6.4.1.1 Two surface water samples were collected in 1996 as part of the LRI and analyzed for VOCs, TPH and metals. No VOCs or TPH were detected. Two metals (barium and lead) were detected, and the concentration of lead was reported to be above the NYSDEC Class C criterion.

1.6.4.1.2 As part of the Parsons RI in 2000, three surface water samples were collected in the pond between the U.S. Army Southern Landfill and the railroad tracks and the adjacent seasonally-wet area. All of the surface water samples were analyzed for TCL VOCs, SVOCs, pesticides, PCBs, TAL metals and hardness. Sample locations and results are summarized on Figure 1.8. The pond sample concentrations were compared to the range of concentrations found in five upstream samples from Black Creek (water from the pond could make its way into Black Creek and so Black Creek is used for upstream comparison purposes). The pond and Black Creek are both classified by NYSDEC as Class C streams suitable for fishing and fish propagation. No pesticides or PCBs were detected in the pond samples. VOC and metals concentrations in the pond samples were below the upstream ranges and the NYSDEC Class C water quality criteria. BEHP was detected above NYSDEC Class C surface water standards at two sample locations at the south end of the pond near the landfill. However, only sample SW08 (a duplicate sample from SW04) exceeded the range of upstream BEHP concentrations found in Black Creek. This location was resampled in April 2010 and BEHP was not detected (see Figure 1.8 and sampling report in Appendix A).

1.7 SUMMARY OF RISK ASSESSMENTS

1.7.1 Qualitative Ecological Risk Assessment

1.7.1.1 A screening-level ecological risk assessment (SLERA) was conducted to evaluate potential adverse impacts to the ecological receptors at SADVA due to the presence of hazardous contaminants in soil, sediment, and surface water. The SLERA broadly contributes to the site characterization and can be used to develop and evaluate the ecological risks at the site, if any exist. The objective of the SLERA is to evaluate whether unacceptable adverse risks may be present, or if risks may be posed to ecological receptors in the future. This objective was met by characterizing ecological plant and animal communities at or near the site, defining and describing the contaminants that may affect the environmental media at the site, and identifying the potential pathways for exposure to contaminants at the site. The information used in the SLERA was largely taken from the Generic Environmental Impact Statement (EIS) prepared for the NEIP (Galesi Group, 2005).

1.7.1.2 An initial screening of chemicals was conducted by comparing sample concentrations to background concentrations in any given media. If no background concentration was available, the chemical was retained in the analysis. Non-bioaccumulative chemicals were screened by comparing to selected ecological benchmarks. For sediment, NYSDEC's sediment screening criteria were used. For soils, surface water and groundwater, United States Environmental Protection Agency (USEPA) Region 5 ecological screening levels were used. These are the primary, applicable and most widely-accepted ecological screening levels available throughout all of USEPA's regions, and they are well-suited to risk assessment techniques. To determine if a chemical was retained for analysis, the following rules were used:

- If the chemical concentration was less than the background concentration, it was screened out of the analyses (eliminated).
- If the chemical concentration of sediment was greater than background concentration, but less than the NYSDEC sediment screening criteria, it was eliminated.
- If the chemical concentration is greater than background, and greater than the USEPA Region 5 screening level, it was retained for analysis.
- Bioaccumulative compounds were retained in the analysis, regardless of whether they exceed screening levels (either background or USEPA screening levels).

1.7.1.3 The qualitative ecological risk assessment concluded that although there are chemicals in various media onsite that pose a high risk to aquatic and terrestrial wildlife, the SADVA site appears to support wildlife typical for the area and for the commercial/ industrial setting that the site has retained for over 60 years. These conclusions are reinforced by two other ecological assessments conducted at AOC 1. The 2004 qualitative assessment of the diversity and condition of aquatic life in the pond found that the observed species composition seemed appropriate for the habitat and all species present appeared active. The 2004 macroinvertebrate community analysis of the pond found the sampling stations were slightly impaired, primarily due to the monotonous (uniform) nature of the man-made pond.

1.7.2 Quantitative Human Health Risk Assessment (HHRA)

1.7.2.1 A quantitative HHRA was prepared by Parsons for the USACE as part of the RI for AOCs 1 and 7. A copy of the HHRA, as presented in the 2007 RI Report, is provided in Appendix B. The specific objective of the HHRA was to provide a quantitative risk assessment of the soil, groundwater, sediment and surface water at the site. The HHRA determines if there is potential risk to human health associated with exposure to these environmental media. Techniques and methodology developed by the USEPA were used for this quantitative HHRA.

1.7.2.2 Only those data that were validated and found to be acceptable for the purposes of the risk assessment were used in the HHRA. After comparing RI sample concentrations to NYSDEC criteria for soil, groundwater and surface water, the risk ratio approach was used to quantify potential risk. USEPA Region 6 risk-based human health media-specific screening levels (MSSLs) were used in the risk ratio analysis. The Region 6 MSSLs were used to quantify potential risk from exposure to contaminants in soil, groundwater, and surface water because they are risk-based criteria for protection of human health and are well-designed for use in risk assessments. USEPA Region 6 screening levels are updated annually and provide screening values for a complete list of chemicals. Of the USEPA regions that provide human health screening values (Regions 3, 6, and 9), the Region 6 values had been updated most recently at the time of the RI. Due to the lack of human health screening levels for sediment from the USEPA, and because the NYSDEC criteria for sediment are for protection of aquatic life only, criteria protective of human health were obtained from the Tier 1 sediment protective concentration levels (PCLs) developed by the Texas Commission on Environmental Quality (TCEQ). The TCEQ are the only known set of risk-based sediment criteria that are designed for protection of human health. The risk ratio analysis provides a quantification of the potential cancer risk and the potential non-cancer hazard as applicable to each individual chemical in each environmental media. The chemical ratios are then summed to determine cumulative risk for the environmental media.

1.7.2.3 Initially, maximum detected chemical concentrations were used as the exposure point concentration (EPC) to calculate risk. Use of maximum concentrations provides a conservative (*i.e.*, most health-protective) estimate of exposure to that chemical. If unacceptable risk was calculated based on the maximum detected concentration of a particular chemical, then the 95% upper confidence level (UCL) was calculated for that chemical and used in the risk ratio approach. The 95% UCLs were calculated using the percentile bootstrap method assuming a non-parametric distribution for the particular contaminants. A minimum of 10 samples is needed for the purposes of calculating the 95% UCL.

1.7.2.4 An exception to using 95% UCLs was used for the groundwater results (refer to the HHRA report in Appendix B). A total of 68 groundwater samples were collected at AOCs 1 and 7. Many of these samples were collected at the same wells during different time frames and not all sampling rounds included analyses for a complete suite of analytes. For example, the June 2006 samples were analyzed for VOC and other discrete water chemistry parameters related to natural attenuation. These types of samples were collected because the purpose of the sampling was to further characterize the VOC plume previously identified in the area. Therefore, SVOCs, pesticides, PCBs and metals were not included in the analysis. For the HHRA, the EPC for groundwater was the detected concentration, if only one sample was collected from a well. For wells with two sampling events, the average concentration was used as the EPC, unless there was only one detected concentration in the two sampling events. In the latter case, the detected concentration was used as the EPC. In wells with 3 sampling events, the EPC was derived in an ad hoc manner after qualitatively reviewing the direction of concentration changes over time. For each detected analyte, the data were inspected to determine if there was a consistent downward or upward direction of change in concentration. If there was a consistent downward or upward direction of change in concentration, the latest concentration was used as the EPC. If there were three detected concentrations, and no obvious direction of change in concentration, the average concentration was used as the EPC. For wells where a duplicate sample was collected, the highest concentration between the primary and duplicate samples was used as the EPC.

1.7.2.5 Based on USEPA (1989) *Risk Assessment Guidance for Superfund* (RAGS) and supplemental guidance related to data evaluation, the list of contaminants of potential concern (COPCs) can be refined during initial screening. One of the screening steps is to eliminate essential nutrients from the HHRA. Thus, results for calcium, magnesium, potassium, iron and sodium were removed from the COPC list and were not considered further in the HHRA.

1.7.2.6 The only other chemical that was not quantified using the risk ratio approach was lead. Following USEPA guidance, lead is evaluated based on blood lead levels and not the potential for cancer or non-cancer risks. Because blood lead level data are not available, lead concentrations detected at the site were directly compared to the screening criteria. For groundwater and surface water, the USEPA maximum contaminant level (MCL) for lead was used as the screening value. For soil, both the USEPA Region 6 residential and commercial/industrial screening values for lead were used. If lead concentrations at the site exceed the criteria, then unacceptable risk may occur. If lead concentrations are lower than the criteria, then there is no unacceptable risk.

1.7.2.7 At the start of the RI, all analytical reporting limits were compared to the regulatory screening criteria for all media to be sampled. Steps were taken to assure that reporting limits would be below the regulatory screening criteria. USEPA guidance allows elimination of COPCs if they are detected in fewer than 5 percent of the samples in a particular medium. This would require at least 20 samples (*i.e.*, 1 detect out of 20 samples equals 5 percent). For this HHRA, detection frequency was qualitatively reviewed following the risk ratio analysis and only on a case-by-case basis (*e.g.*, infrequently detected chemicals that are driving an unacceptable risk). Thus, chemicals were not initially screened from the HHRA based on detection frequency.

Completed Exposure Pathways

1.7.2.8 AOCs 1 and 7 are currently vacant and located in a remote area of NEIP that has limited access. Current land use includes infrequent visits to the site, such as those that would be performed during site sampling investigations. Based on future land use plans at NEIP as described in the NEIP Generic EIS dated June 2005, future land use may include commercial development of this portion of the property. The Master Plan discussed in the NEIP EIS indicates that office buildings and parking lots are proposed in the area of AOCs 1 and 7. The plan identifies eight 20,000-square foot (ft^2) offices and three parking areas with a total of 1,300 parking spaces. The AOC 1 and 7 areas will not be converted to residential use, based on the Master Plan.

1.7.2.9 The completed exposure pathways for the HHRA at AOCs 1 and 7 are listed below. The exposure pathways that were evaluated in the risk ratio analysis are also described below.

Surface Soil

1.7.2.10 The surface soil (0 to 2 feet deep from ground surface) exposure pathways are as follows:

- Incidental ingestion of surface soil, inhalation of volatiles from surface soil, and dermal contact with surface soil by an outdoor worker. This calculation assumes an exposure frequency of 225 days per year and an exposure duration of 25 years. Thus, it provides a conservative evaluation (*i.e.*, most health protective evaluation) for a potential future outdoor worker. This evaluation also provides a very conservative evaluation for a current outdoor worker who would have less exposure, since the exposure frequency at the site would be less now than in the future. It is also very protective of a future indoor worker because indoor worker exposure to surface soil would be much less.
- Although the site is not residential and will not be converted to residential use based on the Master Plan, a residential pathway was shown for comparative purposes. Thus, incidental ingestion of surface soil, inhalation of volatiles from surface soil, and dermal contact with surface soil by a future resident were calculated. This provides a more conservative risk assessment than for other types of receptors. Since this is not a complete exposure pathway, it is considered to be hypothetical and used for comparison only.

Mixed (Surface and Subsurface) Soil

1.7.2.11 For mixed soils, it is generally assumed that surface and subsurface soils are mixed during excavation/construction activities, and that potential exposure to contaminants occurs during the excavation/construction phase, or when contaminants are brought to and remain near the surface. Mixed soils are considered to be 0 to 40 feet below ground surface.

- For worker exposure, the pathway for mixed soil is evaluated the same as for surface soil (described above).
- For residential exposure, the pathway for mixed soil is evaluated the same as for surface soil (described above).

Groundwater

1.7.2.12 The groundwater exposure pathways assumptions are as follows:

- AOCs 1 and 7 are located near the southeast boundary of SADVA where groundwater flow is toward the west-southwest. The area to the south of SADVA is composed of agricultural land and scattered country homes and businesses. Although public water is supplied to the area, there may still be homes or businesses that use private wells for drinking water or other purposes. In the past, residential wells surveys have been conducted and well depths are estimated to be in the range of 60 to over 300 feet. Therefore, a conservative evaluation of residential use of groundwater was included in the HHRA (*i.e.*, the USEPA residential “tap water” screening level is used in the risk ratio analysis). The evaluation uses groundwater data from the site and assumes on-site residential use of groundwater. The routes of exposure include ingestion of groundwater as drinking water and inhalation of volatiles from use of groundwater in the home (*e.g.*, showering, laundering, and dish washing).

- To evaluate the potential for VOCs to volatilize from shallow groundwater into a home or building (*i.e.*, the vapor intrusion pathway), the maximum detected groundwater concentrations were directly compared to USEPA target groundwater concentrations. The target groundwater concentrations are screening criteria to assess whether a vapor intrusion risk may exist, requiring further evaluation. The USEPA target groundwater concentrations are calculated to correspond to target indoor air concentrations, assuming that VOCs in groundwater may be intruding into indoor air. The USEPA target groundwater concentrations are designed to ensure protection of the public in a residential setting, and thus provide a conservative evaluation for a potential future indoor worker.

Sediment

1.7.2.13 The sediment exposure pathway assumptions are as follows:

- The sediment PCLs are based on incidental ingestion of sediment and dermal contact with sediment by a residential receptor. The residential sediment PCLs provide more conservative values than would be assumed for other types of receptors. Thus, the residential PCLs should be protective for any potential current or future worker scenario.

Surface Water

1.7.2.14 Surface water in a small pond in AOC 1 was conservatively assumed to be suitable for drinking water. When the pond water level is high, flow from the pond enters a series of ditches leading to a wetland area located to the west. Black Creek flows through this wetland area and ultimately flows north and west to join the Bozen Kill, which flows into the Watervliet Reservoir. SADVA is upgradient of the Watervliet Reservoir, which is a Class A water body suitable for drinking and all other uses. The comparison of the pond samples to Class A criteria was made during the RI for information purposes to address Restoration Advisory Board (RAB) concerns that water in Black Creek may make its way to the Watervliet Reservoir drinking water supply. However, the reservoir is approximately 4 miles downstream of AOCs 1 and 7. A separate HHRA was conducted for AOC 8 – Black Creek, and the results from the AOC 8 HHRA do not indicate unacceptable risk from chemicals detected in Black Creek.

1.7.2.15 With respect to the pond samples from AOC 1, the following statements about the exposure pathways can be made:

- Ingestion of surface water as drinking water and inhalation of volatiles from use of pond water in the home (*e.g.*, showering, laundering, and dish washing) by a current and/or future residential receptor was assumed. For this evaluation, the USEPA residential "tap water" MSSLs were used. These residential screening levels provide more conservative values (*i.e.*, more health protective values) than for other types of receptors. Thus, the residential screening levels will be protective for potential future workers.

Risk Summary for AOCs 1 and 7

1.7.2.16 The primary objective of this HHRA was to quantitatively characterize the human health risk associated with current and reasonably expected future exposure to contaminated media at AOCs 1 and 7. All potentially complete exposure pathways for the site were evaluated or were assumed to be evaluated based on more protective exposure scenarios (*e.g.*, the residential scenarios provide very conservative (health-protective) estimates for standard worker scenarios).

Surface Soil

1.7.2.17 No unacceptable risks were calculated for the non-carcinogenic chemicals detected in the surface soils at AOCs 1 and 7. The cumulative non-carcinogenic risk ratio results were 0.94 and 0.26 for the residential and industrial receptors, respectively. These results are below the cumulative risk ratio of 1.0, indicating no unacceptable risk is expected.

1.7.2.18 For the carcinogenic chemicals detected in surface soils, the cumulative carcinogenic risk results were $3.1x10^{-5}$ and $1.0x10^{-5}$ for the residential and industrial receptors, respectively. These values are within USEPA's acceptable risk range of 10^{-6} to 10^{-4}, therefore, no unacceptable risk is expected.

Mixed Soil

1.7.2.19 As with surface soils at AOCs 1 and 7, no unacceptable risks were calculated for the non-carcinogenic chemicals detected in the mixed soils at the site. The cumulative non-carcinogenic risk ratio results were 0.72 and 0.16 for the residential and industrial receptors, respectively. These results are well below the cumulative risk ratio of 1.0, indicating no unacceptable risk occurs for the mixed soil exposure pathways.

1.7.2.20 For the carcinogenic chemicals detected in mixed soils, the cumulative carcinogenic risk results were $1.7x10^{-5}$ and $6.4x10^{-6}$ for the residential and industrial receptors, respectively. These values are within USEPA's acceptable risk range of 10^{-6} to 10^{-4}, therefore, no unacceptable risk is expected.

1.7.2.21 After the HHRA was completed, NYSDEC promulgated new risk-based soil cleanup objectives under Title 6 New York Codes Rules and Regulations Part 375. Subsequent to the HHRA, NYSDEC requested that soil concentrations at AOC 1 be compared to the Part 375 soil cleanup objectives. Part 375 industrial land use cleanup objectives were exceeded for PAHs and/or arsenic at 7 soil sample locations within the limits of AOC 1. Therefore, although the HHRA concluded there was no soil risk, the subsequent application of the new Part 375 risk-based soil cleanup objectives identified soil samples that exceed the Part 375 industrial land use criteria.

Groundwater

1.7.2.21 During the risk assessment performed as part of the remedial investigation, it was decided to assess risk posed by each well individually because not every well had the same number of sampling events or set of analytes. Because of these differences, between wells, it was decided to assess risk in the wells individually. The calculated risks for groundwater were evaluated for each individual well, and each individual well represents future residential exposure to groundwater. Although the land use scenario is residential, this land use is unlikely. The current land use is industrial, and is expected to be for the foreseeable future. Further, the site owner has agreed to implement an environmental easement prohibiting groundwater use for potable purposes. For AOC 1, there were no background concentrations available for groundwater, so the results were qualitatively compared to NYSDEC Class GA groundwater quality criteria prior to the risk ratio calculations. No analytes were eliminated from consideration in the screening level risk assessment.

1.7.2.22 For the non-carcinogenic chemicals detected in groundwater, the risk was related to cis-1,2-dichloroethene and metals (nickel, vanadium, selenium and antimony). For the carcinogenic chemicals detected in groundwater, the chemicals driving the unacceptable carcinogenic risks were arsenic, TCE and vinyl chloride (VC), which were detected in wells at AOC 1. Table 1.1 provides a summary of those wells that had unacceptable risks. Included in the table is rationale regarding whether or not the risks will be addressed in the remedial alternatives presented in Section 3 of this FFS. Appendix B provides further details of the groundwater risk assessment.

1.7.2.23 No buildings currently exist at AOC 1 or AOC 7; however, vapor intrusion was assessed to project risks should a building be constructed in the area in the future. The screening criteria to evaluate vapor intrusion of VOCs from shallow groundwater into buildings were based on USEPA (2002) target groundwater concentrations. The target groundwater concentrations are calculated to correspond to target indoor air concentrations that are protective of human health if vapor intrusion occurs. In the vapor intrusion analysis, five VOCs were found to be above the target screening value. The five chemicals were 1,2-dichloroethane (1,2-DCA), *trans*(1,2)dichloroethene (*trans*-1,2-DCE), *cis*(1,2)dichloroethene (*cis*-1,2-DCE), TCE, and VC. Only one well had the highest concentrations of these chemicals, which were the concentrations that exceeded the target screening value for groundwater to indoor air. This well was identified as MW-ACE2 (sampled in July 1996) and also identified as ACE-2 (sampled in June 2000 and June 2006). Most of the concentrations exceeding the target screening values were during the 1996 sampling event. The 2000 sampling event still had high concentrations, but only for three VOCs (*trans*-1,2-DCE, TCE, and VC). The same VOCs were detected again at even lower concentrations in that well when it was sampled in June 2006, though the concentrations still exceeded target screening values.

Sediment

1.7.2.24 There are no unacceptable non-carcinogenic or carcinogenic risks associated with the sediments at the AOC 1 and 7 site. The non-carcinogenic risk ratio result for the site is 0.73 and the carcinogenic risk result is 7.8×10^{-6}. These values are below the target hazard index for non-carcinogens and within USEPA's target cancer risk range, thus there is no unacceptable risk due to exposure to sediments.

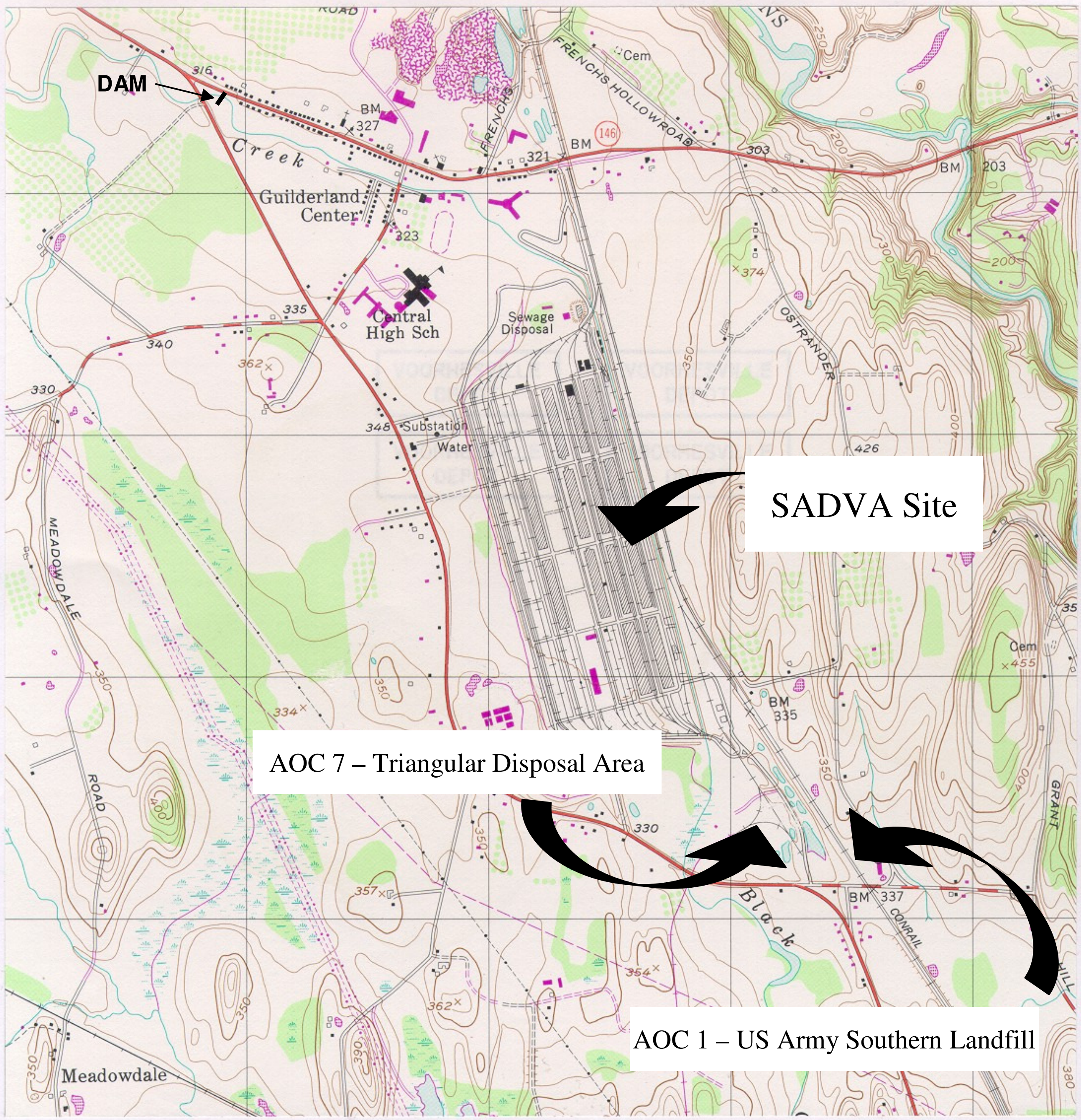
Surface Water

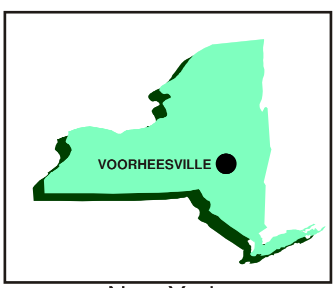
1.7.2.25 Risk calculations indicate that there may be potential for non-carcinogenic and carcinogenic risk for the surface water exposure pathways at the site. The non-carcinogenic risk was 1.7 and was primarily due to exposure to cadmium in pond water. The carcinogenic risk was 2.8×10^{-4} and was primarily due to exposure to TCE, BEHP, and arsenic in pond water. These results are very conservative and likely overestimate the potential risk; thus, it is very unlikely that the pond water poses a potential risk, given that in the pond samples data were collected in 2000, and only BEHP exceeded the NYSDEC Class C surface water quality standard. The BEHP Class C standard is for protection of fish propagation. Subsequent resampling of the pond in 2010 found that BEHP was not detected.

1.7.2.26 There are several factors in this HHRA that overestimate potential risk. Pond water sampling results were compared to the USEPA Region 6 “tap water” MSSLs. These MSSLs assume residential exposure to pond water used as drinking water and inhalation of volatiles from use of surface water in the home (*e.g.*, showering, laundering, and dish washing). The pond water is not used for any purpose, and is unlikely to be used for residential purposes in the future because municipal drinking water is available locally. The comparison of pond samples to residential criteria was made for information purposes based on RAB concerns that water in Black Creek may make its way to the Watervliet Reservoir drinking water supply. However, the pond water must flow through a wetland area before it can reach the Black Creek. The Black Creek ultimately joins the Bozen Kill, which then flows into the Watervliet Reservoir approximately 4 miles downstream of AOCs 1 and 7. It is expected that pond water will be greatly diluted in the wetland, Black Creek and the Bozen Kill before any of the water reaches Watervliet Reservoir. A separate HHRA has been conducted for AOC 8 (Black Creek) and those results show that no potential risk exists, based on the chemicals/metals found in Black Creek water and sediment.

1.8 MASTER PLAN FOR SADVA AOCS 1 AND 7

A Master Plan for SADVA was prepared in April 2005 and is provided in the Generic Environmental Impact Statement for the Northeastern Industrial Park (CHA, 2006). The Master Plan proposes constructing 160,000 square feet of office space and associated parking areas in AOCs 1 and 7, denoted as Area #1 in the Master Plan. The proposed layout consists of 8 offices (160,000 SF) and three parking areas for 1,300 vehicles (100,000 SF). The proposed layout avoids wetlands and the pond, but does place structures on top of the landfill portion of the AOCs.





New York Quadrangle

LATITUDE: N42° 15' 20"
LONGITUDE: W75° 14' 38"

2000 1000 0

Approximate Scale in Feet

FIGURE 1.1

SADVA
GUILDERLAND, NEW YORK

SITE VICINITY

PARSONS

290 ELWOOD DAVIS ROAD, SUITE 312, LIVERPOOL, NY 13088 PHONE: (315) 451-9560

P\743440\wp\ri report\\appendicies\appendix J – AOCs 1 and 7 HHRA\ figureJ.1.ppt

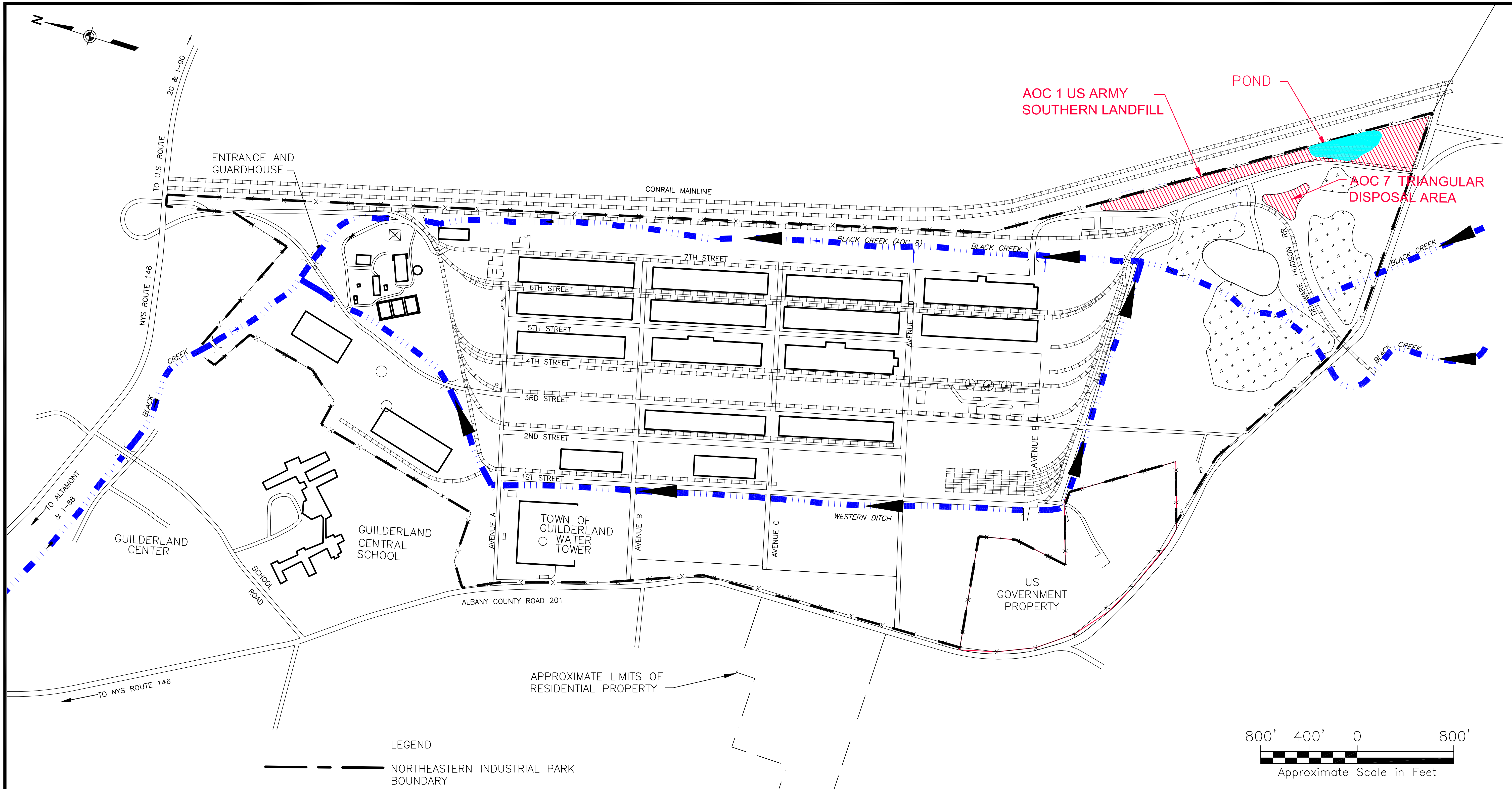


FIGURE 1.2

FORMER SADVA
GUILDERLAND, NEW YORK

FORMER SADVA SITE PLAN

P:\743440\wp\fss\aoc 1+7\report\440C001.dwg, 3/5/08 CLW
No XREFs

SOURCES:
USGS 7.5 MINUTE QUADRANGLE
VOORHEESVILLE, N.Y. 1980 AND
SITE PLAN PREPARED BY
H & A OF N.Y. GEOTECHNICAL ENGINEERS
& ENVIRONMENTAL CONSULTANTS
COUNTY OF ALBANY, REAL PROPERTY
TAX SERVICE, 1997

PARSONS
290 ELWOOD DAVIS ROAD, SUITE 312, LIVERPOOL, N.Y. 13088, PHONE: 315-451-9560

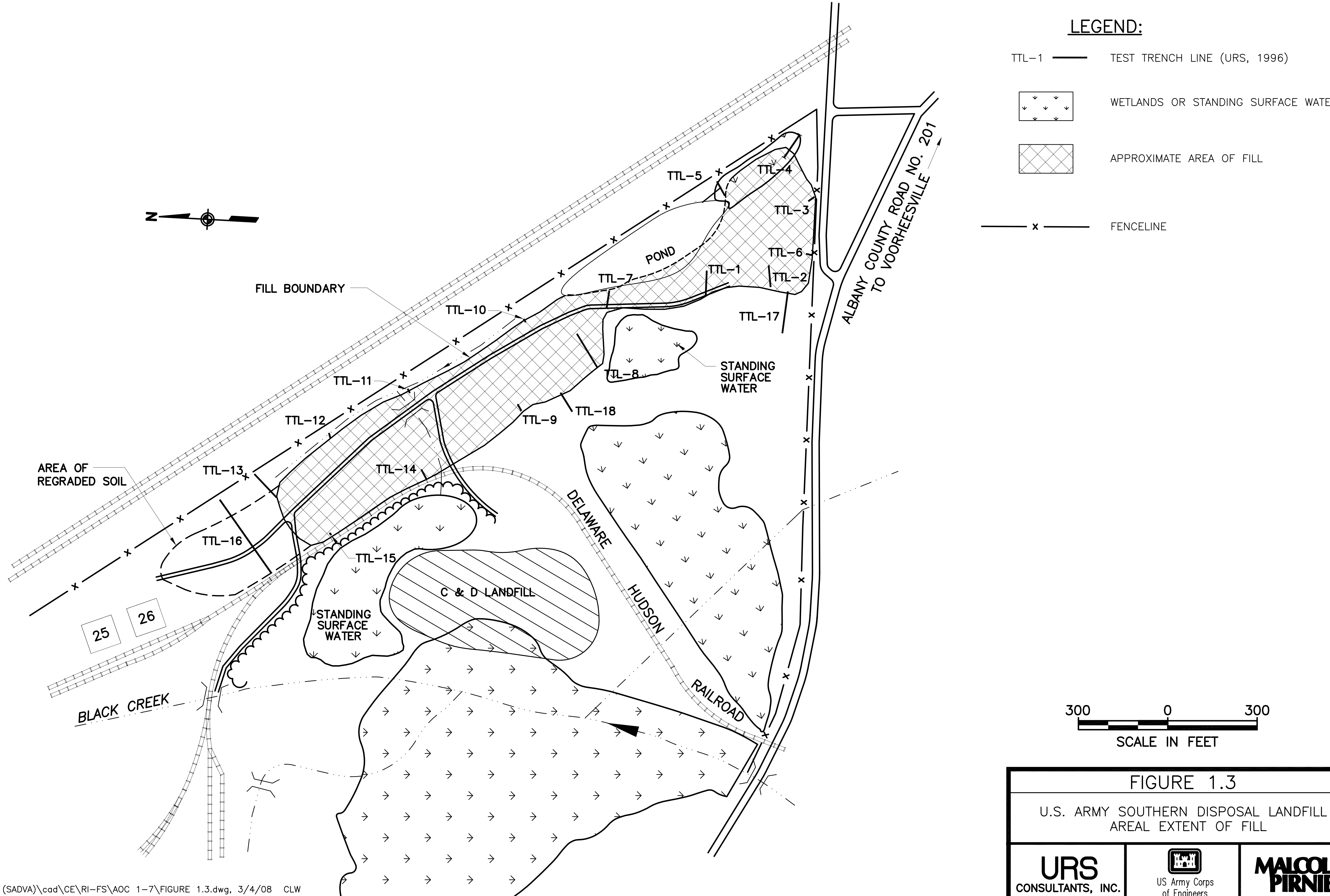


FIGURE 1.3

U.S. ARMY SOUTHERN DISPOSAL LANDFILL
AREAL EXTENT OF FILL

URS CONSULTANTS, INC. | US Army Corps of Engineers | MALCOLM PIRNIE

/35378.11/CAD/11/ 1=300 11/15/96-5 RAL

CC-4164

P:\743440 (SADVA)\cad\CE\RI-FS\AOC 1-7\FIGURE 1.3.dwg, 3/4/08 CLW

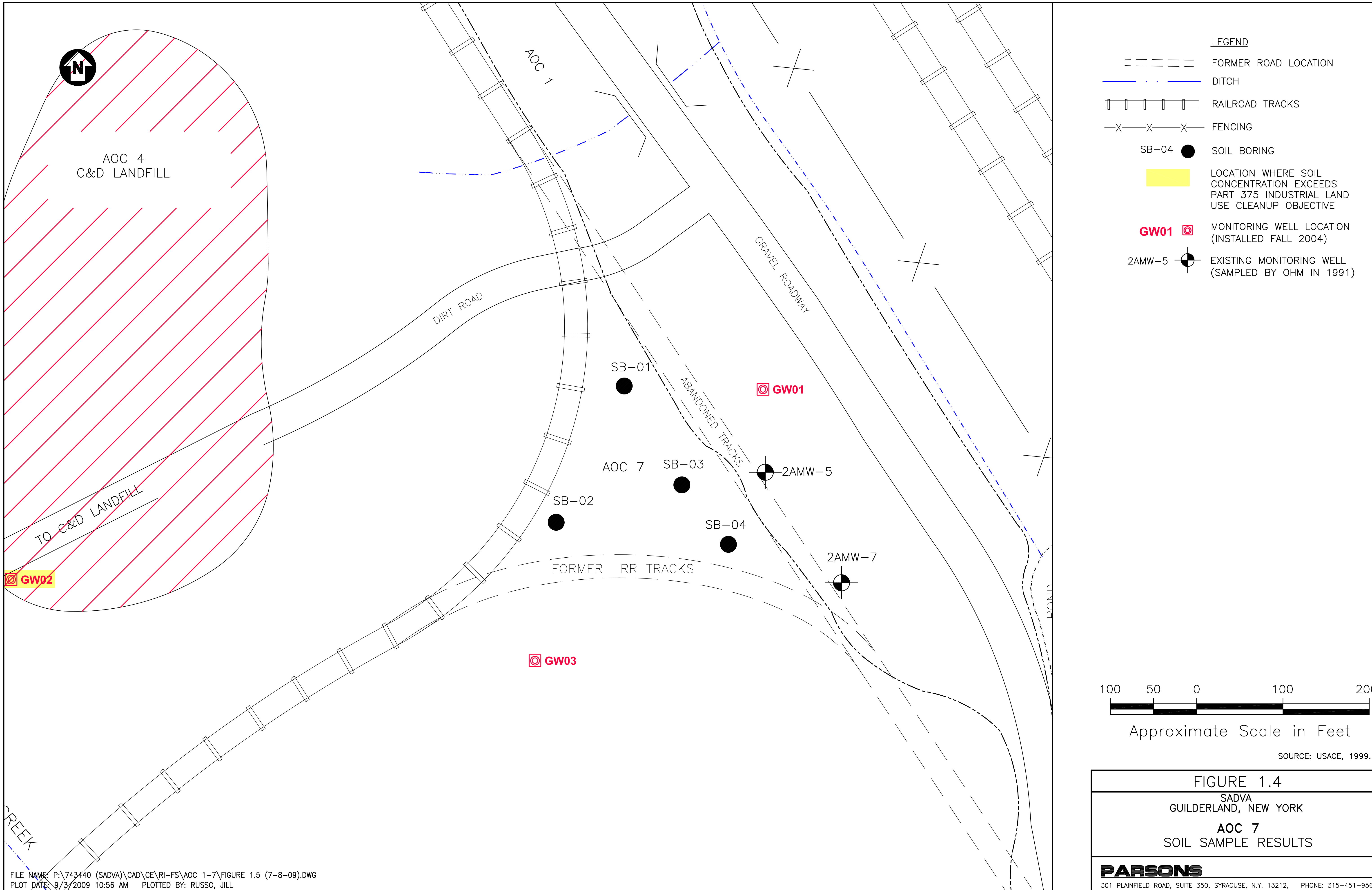
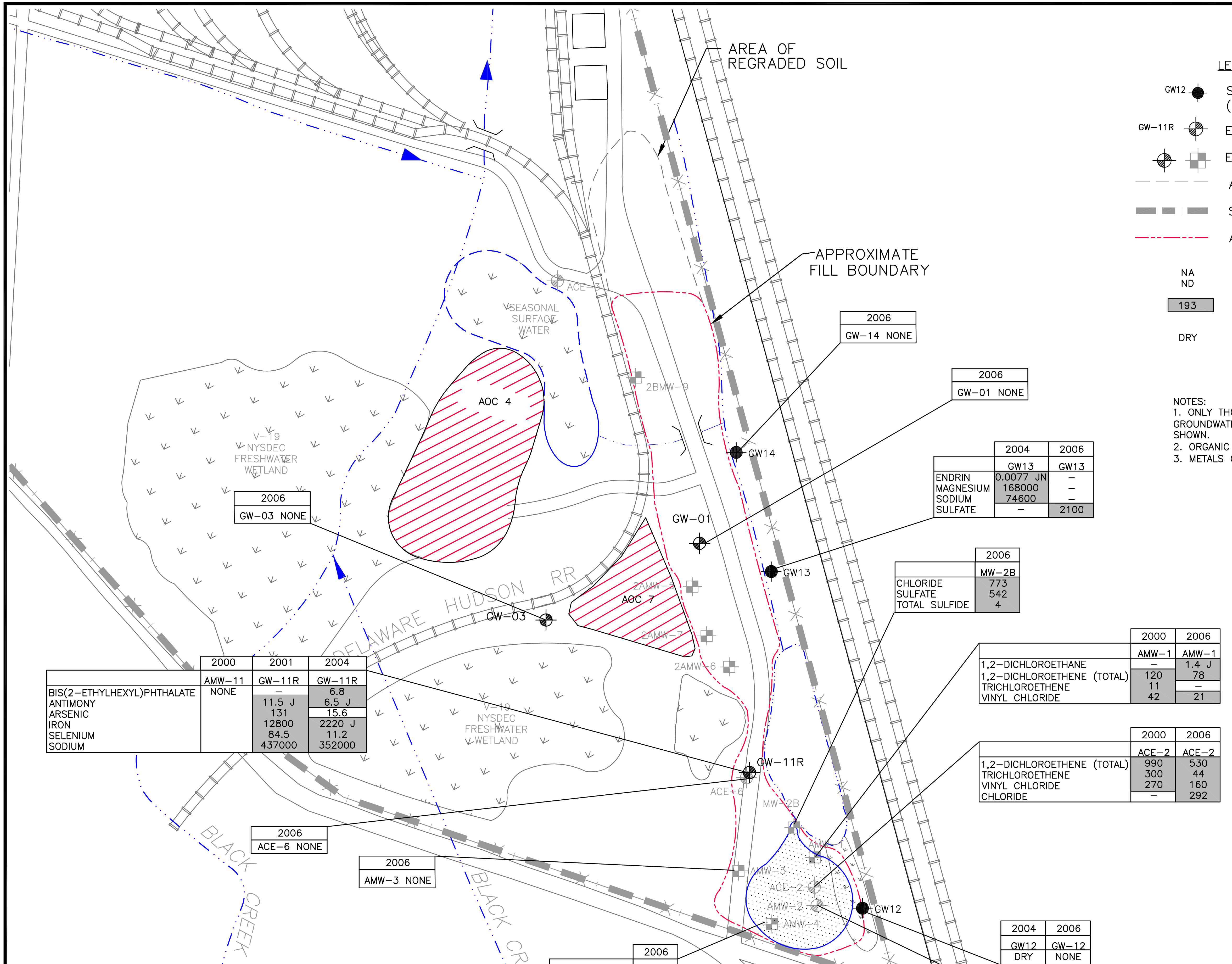


FIGURE 1.4

SADVA
GUILDERLAND, NEW YORK

AOC 7
SOIL SAMPLE RESULTS

PARSONS
301 PLAINFIELD ROAD, SUITE 350, SYRACUSE, N.Y. 13212, PHONE: 315-451-9560



	2004	2006
	GW13	GW13
ENDRIN	0.0077 JN	–
MAGNESIUM	168000	–
SODIUM	74600	–
SULFATE	–	2100

	2006
	MW-2B
CHLORIDE	773
SULFATE	542
TOTAL SULFIDE	4

	2000	2006
	AMW-1	AMW-1
1,2-DICHLOROETHANE	–	1.4 J
1,2-DICHLOROETHENE (TOTAL)	120	78
TRICHLOROETHENE	11	–
VINYL CHLORIDE	42	21

	2000	2006
	ACE-2	ACE-2
1,2-DICHLOROETHENE (TOTAL)	990	530
TRICHLOROETHENE	300	44
VINYL CHLORIDE	270	160
CHLORIDE	–	292

	2000	2001	2004
	AMW-11	GW-11R	GW-11R
BIS(2-ETHYLHEXYL)PHTHALATE	NONE	–	6.8
ANTIMONY		11.5 J	6.5 J
ARSENIC		131	15.6
IRON		12800	2220 J
SELENIUM		84.5	11.2
SODIUM		437000	352000

	2004	2006
	GW12	GW-12
	DRY	NONE

	2006
	AMW-4
VINYL CHLORIDE	3.4 J

LEGEND

- GW12 — SHALLOW WELL LOCATIONS (INSTALLED IN 2004)
- GW-11R — EXISTING DEEP BEDROCK WELL
- EXISTING WELL LOCATIONS
- AREA OF REGRADED SOIL
- SITE BOUNDARY
- APPROXIMATE FILL BOUNDARY OF AOC 1

NA — NOT ANALYZED
ND — NOT DETECTED
193 — ONE OR MORE COMPOUNDS OR METAL CONCENTRATIONS EXCEEDING NYSDEC SEDIMENT AND UPSTREAM
DRY — WELL WAS DRY AT TIME OF SAMPLING

NOTES:
1. ONLY THOSE CONCENTRATIONS EXCEEDING NYSDEC GROUNDWATER STANDARDS/GUIDANCE VALUES ARE SHOWN.
2. ORGANIC CONCENTRATIONS IN ug/L
3. METALS CONCENTRATIONS IN mg/L

300 150 0 300 600

Approximate Scale in Feet

MAP SOURCE: MALCOLM PIRNIE, 1997

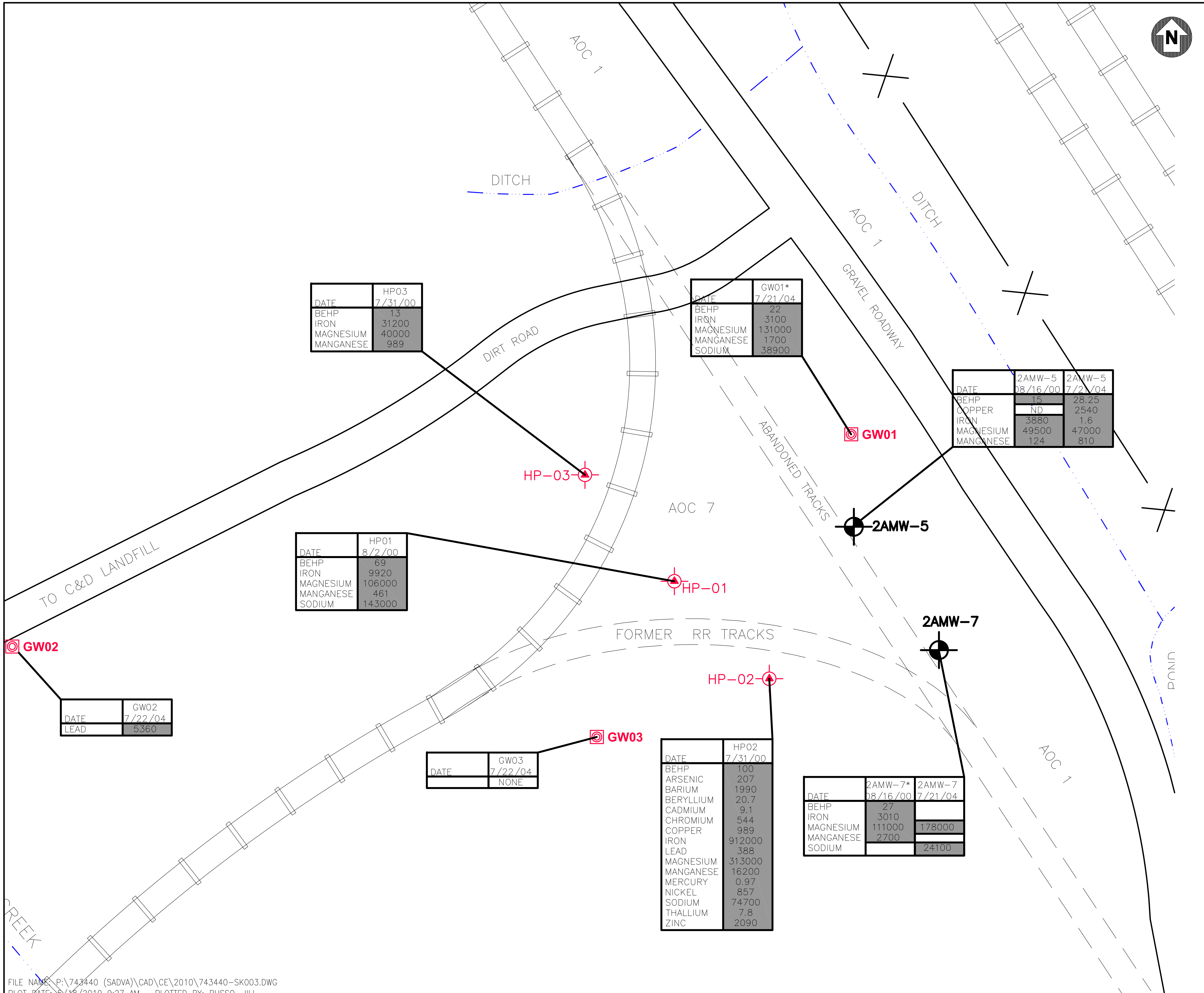
FIGURE 1.5

FORMER SADVA
GUILDERLAND, NEW YORK
AOC 1
U.S. ARMY
SOUTHERN LANDFILL
GROUNDWATER SAMPLE RESULTS THAT EXCEED CLASS GA GROUNDWATER CRITERIA

PARSONS

301 PLAINFIELD ROAD, SUITE 350, SYRACUSE, N.Y. 13212, PHONE: 315-451-9560

FILE NAME: P:\743440 (SADVA)\CAD\CE\2010\743440-SK002.DWG
PLOT DATE: 5/18/2010 9:30 AM PLOTTED BY: RUSSO, JILL



DATE	HP03 7/31/00
BEHP	13
IRON	31200
MAGNESIUM	40000
MANGANESE	989

DATE	GW01* 7/21/04
BEHP	22
IRON	3100
MAGNESIUM	131000
MANGANESE	1700
SODIUM	38900

DATE	2AMW-5 08/16/00	2AMW-5 7/21/04
BEHP	15	28.25
COPPER	ND	2540
IRON	3880	1.6
MAGNESIUM	49500	47000
MANGANESE	124	810

DATE	HP01 8/2/00
BEHP	69
IRON	9920
MAGNESIUM	106000
MANGANESE	461
SODIUM	143000

DATE	GW02 7/22/04
LEAD	5360

DATE	GW03 7/22/04
	NONE

DATE	HP02 7/31/00
BEHP	100
ARSENIC	207
BARIUM	1990
BERYLLIUM	20.7
CADMIUM	9.1
CHROMIUM	544
COPPER	989
IRON	912000
LEAD	388
MAGNESIUM	313000
MANGANESE	16200
MERCURY	0.97
NICKEL	857
SODIUM	74700
THALLIUM	7.8
ZINC	2090

DATE	2AMW-7* 08/16/00	2AMW-7 7/21/04
BEHP	27	
IRON	3010	
MAGNESIUM	111000	178000
MANGANESE	2700	
SODIUM		24100

LEGEND

FORMER ROAD LOCATION

DITCH

RAILROAD TRACKS

FENCING

HP-03 HYDROPUNCH GROUNDWATER SAMPLE

GW01 MONITORING WELL LOCATION (INSTALLED FALL 2004)

2AMW-5 EXISTING MONITORING WELL

– UNKNOWN
NA NOT ANALYZED
ND NOT DETECTED
* DUPLICATE SAMPLE ANALYZED, HIGHEST CONCENTRATION SHOWN

100 SAMPLE CONCENTRATIONS EXCEED NYSDEC GROUNDWATER/STANDARD VALUES AND UPGRADIENT CONCENTRATIONS

NONE NO RESULTS ARE ABOVE UPGRADIENT AND CLASS GA CRITERIA

ALL RESULTS ARE IN ug/L

100 50 0 100 200

Approximate Scale in Feet

SOURCE: USACE, 1999.

FIGURE 1.6

SADVA
GUILDERLAND, NEW YORK

AOC 7
GROUNDWATER SAMPLE RESULTS THAT EXCEED CLASS GA CRITERIA AND UPGRADIENT CONCENTRATIONS

PARSONS

301 PLAINFIELD ROAD, SUITE 350, SYRACUSE, N.Y. 13212, PHONE: 315-451-9560

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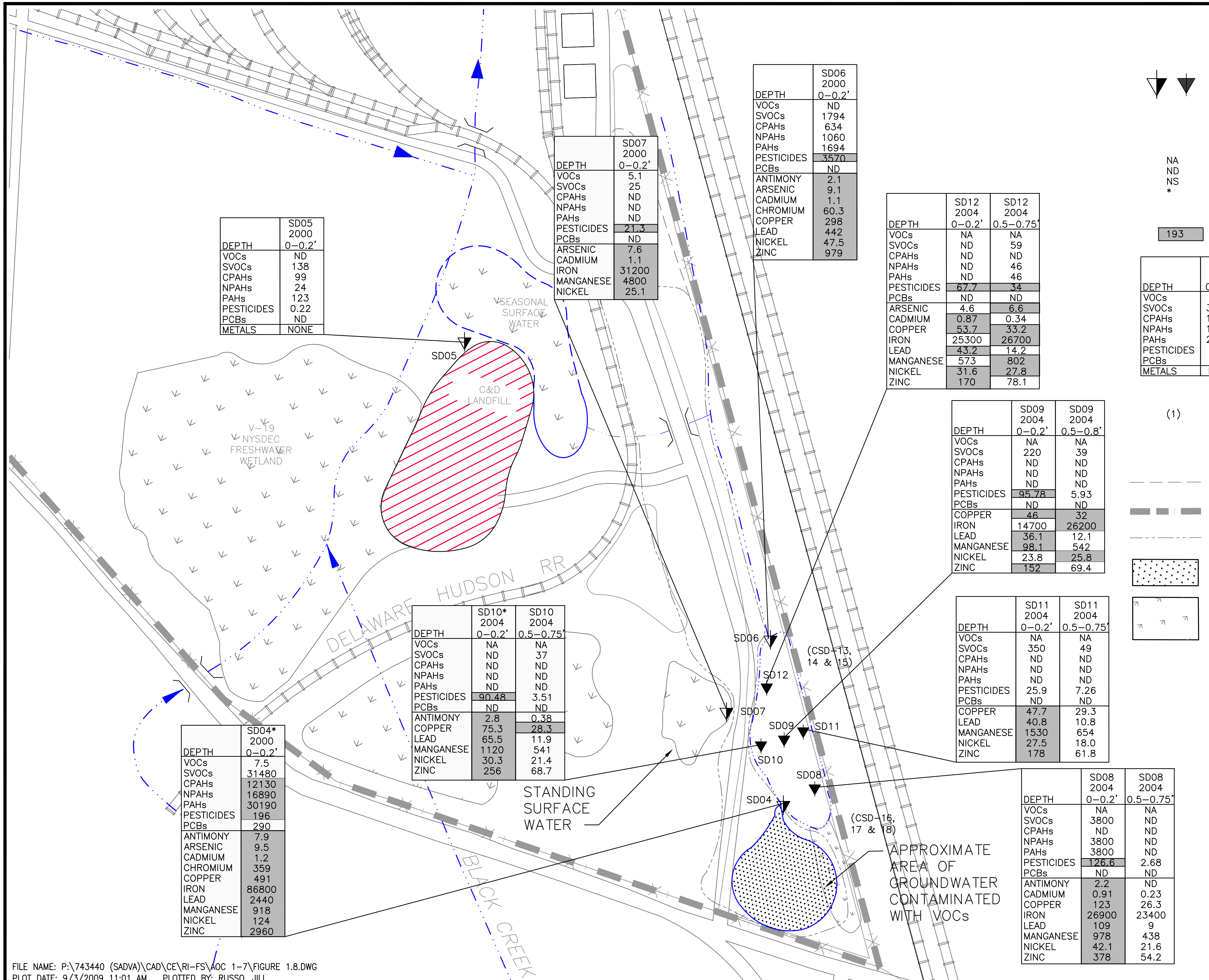


LEGEND

SEDIMENT SAMPLE LOCATION (COLLECTED IN JULY 2000 AND 2004)

NA NOT ANALYZED
ND NOT DETECTED
NS NOT SPECIFIED
* DUPLICATE SAMPLE COLLECTED – HIGHEST CONCENTRATION IS SHOWN

193 ONE OR MORE COMPOUNDS OR METAL CONCENTRATIONS EXCEEDING NYSDEC SEDIMENT OR BACKGROUND CRITERIA

	SD04 2000	
DEPTH	0–0.2'	SAMPLE ID / COLLECTION DATE / DEPTH IN FEET
VOCs	7.5	TOTAL VOCs (ug/kg)
SVOCs	30450	TOTAL SVOCs (ug/kg)
CPAHs	12130	TOTAL CPAHs (ug/kg)
NPAHs	16890	TOTAL NPAHs (ug/kg)
PAHs	29020	TOTAL PAHs (ug/kg)
PESTICIDES	193	TOTAL PESTICIDES (ug/kg)
PCBs	69	TOTAL PCBs (ug/kg)
METALS	NONE	TOTAL METALS (1) (mg/kg)

(1) ONLY THOSE METAL CONCENTRATIONS EXCEEDING NYSDEC SEDIMENT AND UPSTREAM CRITERIA ARE SHOWN. "NONE" MEANS NO METALS CONCENTRATIONS WERE ABOVE CRITERIA AND UPSTREAM CONCENTRATION.

AREA OF REGRADED SOIL
SITE BOUNDARY
APPROXIMATE FILL BOUNDARY
APPROXIMATE AREA OF GROUNDWATER CONTAMINATED WITH VOCs
WETLANDS OR STANDING SURFACE WATER

	SD05 2000
DEPTH	0–0.2'
VOCs	ND
SVOCs	138
CPAHs	99
NPAHs	24
PAHs	123
PESTICIDES	0.22
PCBs	ND
METALS	NONE

	SD07 2000
DEPTH	0–0.2'
VOCs	5.1
SVOCs	25
CPAHs	ND
NPAHs	ND
PAHs	ND
PESTICIDES	21.3
PCBs	ND
ARSENIC	7.6
CADMIUM	1.1
IRON	31200
MANGANESE	4800
NICKEL	25.1

	SD06 2000
DEPTH	0–0.2'
VOCs	ND
SVOCs	1794
CPAHs	634
NPAHs	1060
PAHs	1694
PESTICIDES	3570
PCBs	ND
ANTIMONY	2.1
ARSENIC	9.1
CADMIUM	1.1
CHROMIUM	60.3
COPPER	298
LEAD	442
NICKEL	47.5
ZINC	979

	SD12 2004	SD12 2004
DEPTH	0–0.2'	0.5–0.75'
VOCs	NA	NA
SVOCs	ND	59
CPAHs	ND	ND
NPAHs	ND	46
PAHs	ND	46
PESTICIDES	67.7	34
PCBs	ND	ND
ARSENIC	4.6	6.6
CADMIUM	0.87	0.34
COPPER	53.7	33.2
IRON	25300	26700
LEAD	43.2	14.2
MANGANESE	573	802
NICKEL	31.6	27.8
ZINC	170	78.1

	SD09 2004	SD09 2004
DEPTH	0–0.2'	0.5–0.8'
VOCs	NA	NA
SVOCs	220	39
CPAHs	ND	ND
NPAHs	ND	ND
PAHs	ND	ND
PESTICIDES	95.78	5.93
PCBs	ND	ND
COPPER	46	32
IRON	14700	26200
LEAD	36.1	12.1
MANGANESE	98.1	542
NICKEL	23.8	25.8
ZINC	152	69.4

	SD11 2004	SD11 2004
DEPTH	0–0.2'	0.5–0.75'
VOCs	NA	NA
SVOCs	350	49
CPAHs	ND	ND
NPAHs	ND	ND
PAHs	ND	ND
PESTICIDES	25.9	7.26
PCBs	ND	ND
COPPER	47.7	29.3
LEAD	40.8	10.8
MANGANESE	1530	654
NICKEL	27.5	18.0
ZINC	178	61.8

	SD10* 2004	SD10 2004
DEPTH	0–0.2'	0.5–0.75'
VOCs	NA	NA
SVOCs	ND	37
CPAHs	ND	ND
NPAHs	ND	ND
PAHs	ND	ND
PESTICIDES	90.48	3.51
PCBs	ND	ND
ANTIMONY	2.8	0.38
COPPER	75.3	28.3
LEAD	65.5	11.9
MANGANESE	1120	541
NICKEL	30.3	21.4
ZINC	256	68.7

	SD04* 2000
DEPTH	0–0.2'
VOCs	7.5
SVOCs	31480
CPAHs	12130
NPAHs	16890
PAHs	30190
PESTICIDES	196
PCBs	290
ANTIMONY	7.9
ARSENIC	9.5
CADMIUM	1.2
CHROMIUM	359
COPPER	491
IRON	86800
LEAD	2440
MANGANESE	918
NICKEL	124
ZINC	2960

	SD08 2004	SD08 2004
DEPTH	0–0.2'	0.5–0.75'
VOCs	NA	NA
SVOCs	3800	ND
CPAHs	ND	ND
NPAHs	3800	ND
PAHs	3800	ND
PESTICIDES	126.6	2.68
PCBs	ND	ND
ANTIMONY	2.2	ND
CADMIUM	0.91	0.23
COPPER	123	26.3
IRON	26900	23400
LEAD	109	9
MANGANESE	978	438
NICKEL	42.1	21.6
ZINC	378	54.2

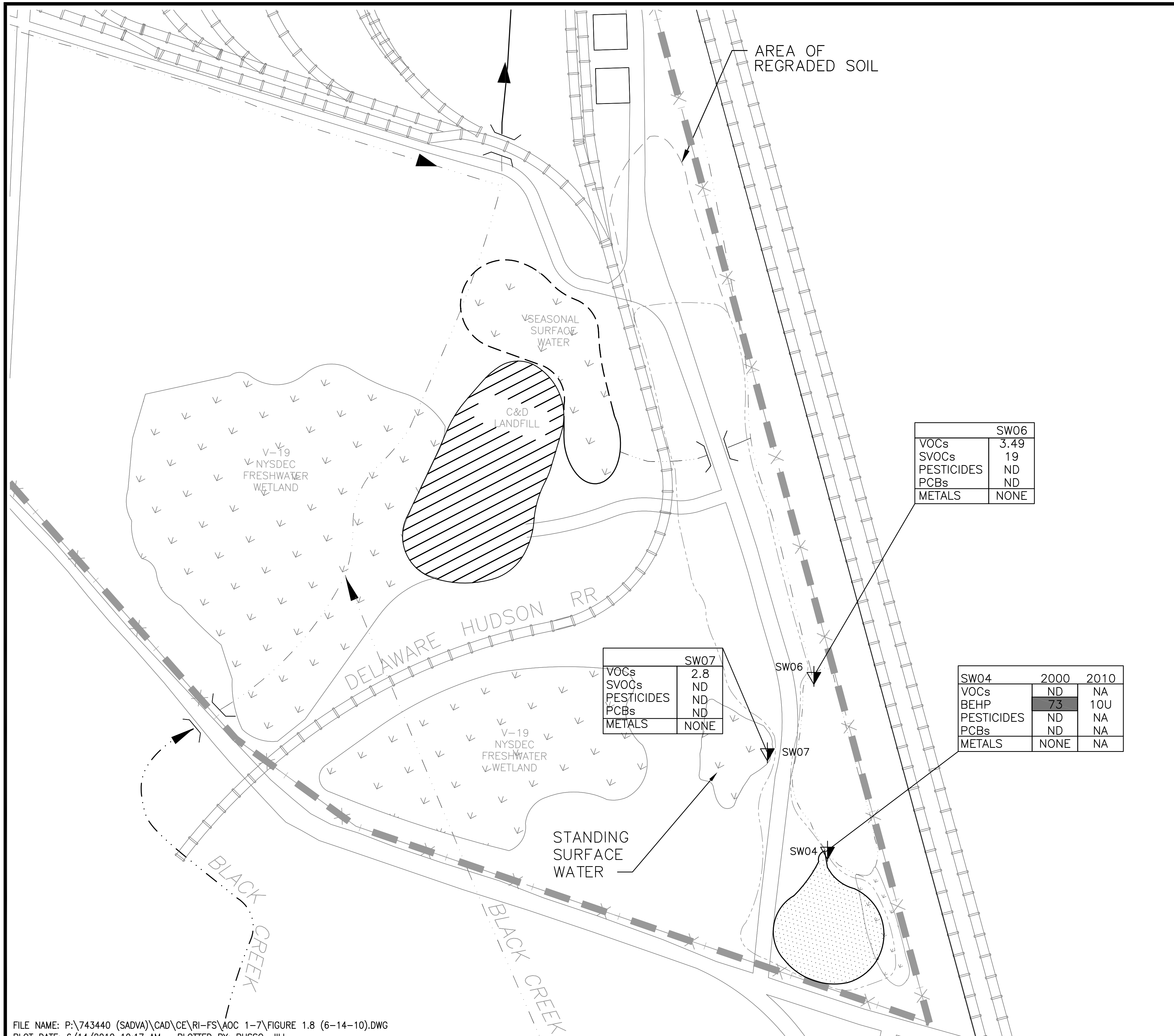
MAP SOURCE: MALCOLM PIRNIE, 1997

FIGURE 1.7

FORMER SADVA
GUILDERLAND, NEW YORK
AOC 1
U.S. ARMY
SOUTHERN LANDFILL
SEDIMENT SAMPLE RESULTS

PARSONS
290 ELWOOD DAVIS ROAD, SUITE 312, LIVERPOOL, N.Y. 13088, PHONE: 315-451-9560

FILE NAME: P:\743440 (SADVA)\CAD\CE\RI-FS\AOC 1-7\FIGURE 1.8.DWG
PLOT DATE: 9/3/2009 11:01 AM PLOTTED BY: RUSSO, JILL



	SW07
VOCs	2.8
SVOCs	ND
PESTICIDES	ND
PCBs	ND
METALS	NONE

	SW06
VOCs	3.49
SVOCs	19
PESTICIDES	ND
PCBs	ND
METALS	NONE

SW04	2000	2010
VOCs	ND	NA
BEHP	73	10U
PESTICIDES	ND	NA
PCBs	ND	NA
METALS	NONE	NA

LEGEND:

SURFACE WATER SAMPLE LOCATION (COLLECTED JULY 2000, UNLESS NOTED)

AREA OF REGRADED SOIL

SITE BOUNDARY

APPROXIMATE FILL BOUNDARY

APPROXIMATE AREA OF GROUNDWATER CONTAMINATED WITH VOCs

WETLANDS OR STANDING SURFACE WATER

	SW07	
		SAMPLE ID
VOCs	2.8	TOTAL VOCs (ug/L)
SVOCs	ND	TOTAL SVOCs (ug/L)
PESTICIDES	ND	TOTAL PESTICIDES (ug/L)
PCBs	ND	TOTAL PCBs (ug/L)
METALS	NONE	TOTAL METALS (THE NUMBER OF METALS THAT EXCEED UPSTREAM AND SEDIMENT CRITERIA CONCENTRATIONS IS GIVEN)

BEHP BIS(2ETHYLHEXYL)PHTHALATE

U NOT DETECTED AT THE LISTED REPORTING LIMIT

NA NOT ANALYZED

ND NOT DETECTED

* DUPLICATE SAMPLE COLLECTED HIGHEST CONCENTRATION SHOWN

73 ONE OR MORE COMPOUNDS OR METAL CONCENTRATIONS EXCEEDING NYSDEC STANDARDS/GUIDANCE VALUES AND UPSTREAM RANGES.

300 150 0 300 600

Approximate Scale in Feet

MAP SOURCE: MALCOLM PIRNIE, 1997

FIGURE 1.8

FORMER SADVA
GUILDERLAND, NEW YORK
AOC 1
U.S. ARMY
SOUTHERN LANDFILL
SURFACE WATER ANALYTICAL RESULTS

PARSONS

301 PLAINFIELD ROAD, SUITE 350, SYRACUSE, N.Y. 13212, PHONE: 315-451-9560

FILE NAME: P:\743440 (SADVA)\CAD\CE\RI-FS\AOC 1-7\FIGURE 1.8 (6-14-10).DWG
PLOT DATE: 6/14/2010 10:17 AM PLOTTED BY: RUSSO, JILL

TABLE 1.1
Summary of Groundwater Risks Calculated from HHRA

Well	HHRA Contaminants of Concern and Calculated Risks	Addressing The Risk in the FS?
		AOC1
MW-AMW-1	Cis-1,2-DCE (1.6), VC (1.5×10^{-3})	Yes - the VOCs have been shown to be attenuating naturally, and are amenable to remedial alternatives presented in Section 3 of the FS.
MW-ACE2	TCE, VC, arsenic (1.7×10^{-2}), lead	Yes for VOCs - the VOCs have been shown to be attenuating naturally, and are amenable to remedial alternatives presented in Section 3 of the FS. No for arsenic; Yes for lead - arsenic level (6 ug/L) is below the USEPA drinking water standard (maximum contaminant level [MCL] - 10 ug/L) and the NYSDEC recommended cleanup objective (25 ug/L). Lead level (79 ug/L) is above the USEPA screening value (15 ug/L) and the NYSDEC Class GA Groundwater Standard (25 ug/L). Typical lead levels occurring upgradient of other AOCs at the SADVA site are in the range of less than 2 ug/L to 13 ug/L. The other detections of lead above screening levels were in wells sampled in 1988.
MW-AMW11/ GW-11R	aluminum, antimony, selenium, vanadium (1.6), arsenic (1.6×10^{-3})	No - the most recent arsenic level (15.6 ug/L in GW-11R) is above the USEPA MCL (10 ug/L) but below the NYSDEC Class GA Groundwater Standard (25 ug/L). There is no Class GA standard for aluminum. The most recent concentration of antimony (6.5 ug/L) is slightly above the Class GA standard (3 ug/L) and the range of concentrations found upgradient of other AOCs at the SADVA site (less than 1.5 ug/L to 2.9 ug/L). The most recent concentration of selenium (11.2 ug/L) is slightly above the Class GA standard (10 ug/L) and the range of concentrations found upgradient of other AOCs at the SADVA site (less than 2.1 ug/L to 5.8 ug/L). There is no Class GA standard for vanadium. These metals were not found above Class GA criteria in other wells at AOC 1 during the 1996 and more recent RI.
MW-ACE4	arsenic (2.2×10^{-4})	No - arsenic level is equal to the USEPA MCL (10 ug/L) and below the NYSDEC Class GA Groundwater Standard (25 ug/L).
MW-ACE3	arsenic (1.1×10^{-4})	No - arsenic level is below the USEPA MCL (10 ug/L) and the NYSDEC Class GA Groundwater Standard (25 ug/L).
MW2-2	arsenic (1.1×10^{-4})	No - arsenic level is below the USEPA MCL (10 ug/L) and the NYSDEC Class GA Groundwater Standard (25 ug/L).
MW-2AMW8	arsenic (1.8×10^{-3})	Yes - arsenic level (82 ug/L) is above the USEPA MCL (10 ug/L), the NYSDEC Class GA Groundwater Standard (25 ug/L) and the range of concentrations found upgradient of other AOCs at the SADVA site (less than 2.6 ug/L to 5 ug/L). However, this well has not been sampled since 1996. The risk is being addressed through the use of a soil cover to limit infiltration and institutional controls to prohibit use of groundwater onsite for drinking purposes.
SC-2 AMW5	arsenic (2.6×10^{-4})	No - arsenic level (14.7 ug/L) is above the USEPA MCL (10 ug/L) but below the NYSDEC Class GA Groundwater Standard (25 ug/L). The concentration is above the range of arsenic concentrations found upgradient of other AOCs at the SADVA site (less than 2.6 ug/L to 5 ug/L).
MW-2AMW3	arsenic (1.1×10^{-4})	No - arsenic level is below the USEPA MCL (10 ug/L) and the NYSDEC Class GA Groundwater Standard (25 ug/L).
		AOC7
2AMW-7	manganese (1.8)	No - 2AMW-7 is the only well that indicated a risk for manganese and is not seen as a site-wide contaminant of concern
2AMW-5	arsenic (3.3×10^{-4})	No - arsenic level is below the NYSDEC Class GA Groundwater Standard (25 ug/L).
HP-01	arsenic (1.2×10^{-4})	No - arsenic level is below the USEPA MCL (10 ug/L) and the NYSDEC Class GA Groundwater Standard (25 ug/L).

Notes:

Wells MW-1, MW-3 and MW-4, sampled in 1988 and included in the HHRA are not included in this table since they are not located within AOCs 1 and 7.

Well MW-2, sampled in 1988 and included in the HHRA, is the same well as MW2-2 and is not included twice.
Samples collected from temporary well points HP-2 and HP-3 resulted in metals exceedances and associated risk. However, these well points experienced a lot of turbidity; permanent wells installed indicated no risk.
TCE - trichloroethene
DCE - dichloroethene
VC - vinyl chloride
(1.6) - Non-carcinogenic hazard index for the well
(1×10^{-3}) - Carcinogenic risk for the well

SECTION 2

IDENTIFICATION OF REMEDIAL ACTION OBJECTIVES AND PRELIMINARY REMEDIATION GOALS

2.1 MEDIA AND PARAMETERS TO ADDRESS

2.1.1 The purpose of this section is to identify the preliminary remediation goals (PRGs) and remedial action objectives (RAOs) for AOCs 1 and 7. PRGs provide an important basis for the analysis of remedial alternatives in Section 4 of this report. Under the USEPA (1988) FS guidance, the development of PRGs is an iterative process over the course of a feasibility study; hence, there are "potential" PRGs as well as "interim" and "final" PRGs. The interim PRGs are presented herein. The chemicals of concern (COCs) are those identified by the RI and/or the HHRA as posing a potential impact on human health.

2.1.2 The development of RAOs and PRGs requires the identification of ARARs, which consist of federal (or state, if more stringent) statutes and regulations, and other advisories, criteria, or guidelines, which are referred to as items "to be considered" (TBCs). These TBCs are not promulgated and, therefore, are not considered ARARs. However, lead and support agencies (and other interested parties) may, as appropriate, identify advisories, criteria, or guidance as TBCs for a particular release. If appropriate, such TBCs may be incorporated into a selected remedy. The ARARs and TBCs are evaluated in this section of the report to form RAOs and PRGs.

2.1.3 The results of the RI indicated the sediments in the main pond have concentrations of some contaminants above NYSDEC sediment screening criteria, which are based on ecological impacts. NYSDEC sediment criteria are for the purposes of this FFS, however, "non-promulgated guidance criteria considered". Further, a 2004 qualitative assessment of the diversity and condition of aquatic life in the pond found that the observed species composition seemed appropriate for the habitat and all species present appeared active. The HHRA indicated that no unacceptable human health risk occurs from the sediment. Therefore, sediment remediation is not considered necessary.

2.1.4 Soil was shown in the HHRA to not pose an unacceptable risk to human health. After the HHRA was completed, NYSDEC promulgated new risk-based "soil cleanup objectives" under Title 6 New York Codes Rules and Regulations Part 375. Subsequent to the HHRA, NYSDEC requested that soil concentrations at AOC 1 be compared to the Part 375 "soil cleanup objectives". Part 375 industrial land use cleanup objectives were exceeded for PAHs and/or arsenic at 7 soil sample locations within the limits of AOC 1. Therefore, although the HHRA concluded there was no soil risk, the subsequent application of the new Part 375 risk-based soil cleanup objectives identified soil samples that exceed the Part 375 industrial land use criteria. In addition, the soils inside the landfill were not fully characterized in accordance with application of the USEPA's *CERCLA Municipal Landfill Presumptive Remedy to Military Landfills.* The presumptive remedy provides guidance for when source containment technology can be applied without considering alternate technologies (such as source removal or remediation), and without fully characterizing the landfill wastes (USEPA, 1996a). The containment presumptive remedy includes landfill material covering and containment (to eliminate the soil direct contact exposure pathway) and source area groundwater control. Applicability of the containment presumptive remedy includes the following landfill characteristics:

- Low-level risks associated with the material except for "hot spots" (the term "hot spots" is used in the presumptive remedy guidance document);
- Heterogeneity of materials which often makes treatment impractical;
- Waste types include household, commercial, non-hazardous sludge, and industrial solid wastes;
- Lesser quantities of hazardous wastes compared to non-hazardous wastes; and
- Lack of injection wells, surface impoundments, or waste piles.

The landfill at AOC 1 meets requirements for the USEPA's containment presumptive remedy. All soil sample locations where Part 375 industrial land use cleanup objectives were exceeded are within the limits of the landfill and will be addressed by the presumptive remedy. Therefore, no soil PRGs were developed as part of this FFS.

2.1.5 AOC 7 poses no unacceptable risk with respect to soil and groundwater exposures. The HHRA determined there was no unacceptable soil exposure risk. The HHRA did identify unacceptable risk associated with groundwater; however, that risk is primarily related to groundwater at AOC 1. There is no unacceptable risk associated with groundwater at AOC 7. (Table 1.1). In addition, the vegetative cover over AOC 7 is intact, and all soil sample concentrations within the limits of AOC 7 are below the Part 375 industrial land use cleanup objectives. Therefore, AOC 7 is not considered in the remedial alternatives.

2.1.6 As documented in the RI and described in Section 1.7.1 of this FFS, the AOC 1 and 7 sites do not substantially impact any significant ecological resources; therefore, PRGs have not been developed based on potential ecological impacts.

2.2 EXPOSURE PATHWAYS

2.2.1 The possible exposure pathways include:

- Direct contact with soils;
- Incidental ingestion of groundwater;
- Inhalation of groundwater or surface water from use of groundwater or surface water (i.e., showering, laundering, and dish washing); and
- Inhalation of volatiles due to vapor intrusion of VOCs from shallow groundwater into indoor air.

Possible receptors are persons visiting or working on the property.

2.3 ARARS

2.3.1 Remediation of AOC 1 is subject to Federal (and State, if more stringent) environmental statutes and regulations in accordance with the CERCLA process for determining ARARs. Section 121(d)(1) of CERCLA generally requires that response actions attain a degree of cleanup that assures protection of human health and the environment. Section 121(d)(2) and its implementing regulations in the National Contingency Plan (NCP - 40 CFR Part 300) further require that response actions at least attain Federal ARARs as well as any state ARARs that are more stringent than Federal ARARs (unless an ARAR waiver becomes necessary). To be eligible for selection, a remedial action alternative must comply with ARARs, unless specifically waived.

2.3.2 In addition to ARARs, advisories, criteria, or guidance may be evaluated as TBC regulatory items. The NCP provides that the TBC category may include advisories, criteria, or guidance that were developed by USEPA, by other Federal agencies, states, or by local governments that may be useful in devising CERCLA remedies. These TBCs are not promulgated and, therefore, are not considered ARARs. However, lead and support agencies (and other interested parties) may, as appropriate, identify advisories, criteria, or guidance as TBCs for a particular release. If appropriate, such TBCs may be incorporated into a selected remedy. Three categories of ARARs and TBCs were reviewed for this site: chemical-specific, action-specific and location-specific. Each one is described below. A summary of ARARs and TBCs considered for AOC 1 is presented in Table 2.1.

2.3.1 Chemical-Specific ARARs

2.3.1.1 Chemical-specific ARARs are health-based or risk-based concentration limits, goals, or ranges in various environmental media for specific hazardous substances. If these values are deemed “applicable” or “relevant and appropriate,” they become a key element in developing PRGs when applied to the site-specific conditions. Chemical-specific ARARs include remediation goals for designated media, such as groundwater, which can be used in the development of RAOs for site media. The primary chemicals and media that have been affected by waste residuals at AOC 1 are VOCs in groundwater, and the HHRA indicated that groundwater at AOC 1 poses an unacceptable human health risk.

2.3.1.2 The key groundwater chemical-specific ARARs for the site are MCLs promulgated by the USEPA and NYSDEC Class GA groundwater quality standards The NYSDEC Class GA groundwater quality standards are the chemical-specific ARARs used as part of the evaluation of remediation alternatives if they are more stringent than the federal MCLs. Table 2.2 provides a summary of potential chemical-specific ARARs for groundwater.

2.3.1.3 There are no promulgated Federal surface water standards. The pond at AOC 1 is classified by NYSDEC as Class C, and has the potential to flow into Black Creek; Black Creek is a Class C stream in the vicinity of the site. Therefore, Class C New York State surface water quality standards are the chemical-specific ARARs for pond surface water. NYSDEC Class C surface water quality guidance values would be TBCs at the site if no standards are available; however, the surface water COC for the site (BEHP) has standards instead of guidance values. Class C surface water quality standards are protective of fish propagation. The chemical-specific surface water ARAR for the site is the Class C standard for BEHP (0.6 ug/l). The most recent pond surface water sample, collected in April 2010, did not detect BEHP, and so this ARAR is currently satisfied.

2.3.1.4 Soil was shown in the HHRA to not pose an unacceptable risk to human health. After the HHRA was completed, NYSDEC promulgated new risk-based soil cleanup objectives under Title 6 New York Codes Rules and Regulations Part 375. Subsequent to the HHRA, NYSDEC requested that soil concentrations at AOC 1 be compared to the Part 375 soil cleanup objectives. Part 375 industrial land use cleanup objectives were exceeded for PAHs and/or arsenic at 7 soil sample locations within the limits of AOC 1. Therefore, although the HHRA concluded there was no soil risk, the subsequent application of the new Part 375 risk-based soil cleanup objectives identified soil samples that exceed the Part 375 industrial land use criteria. Four categories of soil cleanup objectives have been established under 6 NYCRR Part 375: unrestricted; residential; commercial; and industrial land use. For the purposes of this FS, the Part 375 industrial land use cleanup objectives have been designated as chemical-specific ARARs for soil.

2.3.2 Action-Specific ARARs

Action-specific ARARs are technology- or activity-based requirements or limitations pertaining to waste remediation. These ARARs are prompted by and apply to the implementation of particular remedial activities.

2.3.2.1 Landfill Closure Requirements

2.3.2.1.1 The regulations and requirements stated in 40 CFR Part 264.310 provide federal requirements for closure/post-closure care of landfills. These regulations outline final landfill cover requirements as well as post-closure maintenance and monitoring requirements. 40 CFR Part 264.310 requirements are ARARs for this site. In addition to the Federal requirements, New York State has regulations (6 NYCRR Part 373-14(d)) that govern landfill closure. The site will comply with 6 NYCRR 373.14, which are similar or identical to the Federal requirements. The referenced federal hazardous waste landfill regulations apply because NYSDEC has designated the AOC 1 site as a Class 2 inactive hazardous waste site.

2.3.3 Location-Specific ARARs

2.3.3.1 Location-specific ARARs are restrictions that are based on their specific location. Potential location-specific ARARs for the site include restrictions on certain land development activities in floodplains, federal- or state-delineated wetlands, and navigable waters of the United States; restrictions to protect critical habitats for endangered or threatened species; restrictions on activities in areas designated as wilderness, wildlife refuges, or sole-source aquifers for drinking water; and restrictions to preserve historic structures and properties. Statutes, regulations, and guidelines used in the identification of location-specific ARARs for the site are associated with rare/threatened/endangered species, historic structures, floodplain, wetland, or sole-source aquifer resources, among others.

2.3.3.2 <u>Endangered Species/Critical Habitat:</u> There are no known occurrences of threatened or endangered plant or animal species within or near AOC 1.

2.3.3.3 Archaeological or Historical Structures: AOC 1 has not been surveyed for subsurface historical resources that could possibly exist at the site. However, AOC 1 has been extensively disturbed since first being developed in the 1940s and no archeological or historical resources are known to exist at this site.

2.3.3.4 Floodplains, Delineated Wetlands, Sole-Source Aquifer: A wetland survey was conducted by EA Engineering, Science and Technology at AOC 1 in 1999 and determined that two separate wetlands systems occur at AOC 1: a pond/march system and a forested wetland. While the pond/marsh environment supports wildlife and waterfowl, it does not represent an extensive or diverse habitat. The forested wetland is contiguous with a larger wetland system lying within the 100-year floodplain of the Black Creek and has the potential to be high quality habitat for wildlife and waterfowl. The forested wetland systems are shown on NYSDEC wetlands maps as Wetland V-19, although the study indicated that the boundaries extend further to the east than shown on the NYSDEC map. The study concluded that any remedial alternatives impacting the remaining wetland areas should include mitigation to enhance wetland functions on the site (EA, 1999). All alternatives considered do not impact wetlands.

2.4 INTERIM SITE PRGS

2.4.1 PRGs are chemical-specific, long-range, target cleanup goals developed to assist in the selection of a preferred site remedy. USEPA risk assessment guidance describes the procedure for determining PRGs (USEPA, 1991). PRGs have the following four attributes:

1. Numeric concentration goals for specific media and land use combinations based on ARARs, quantitative estimates of risk, or reliable background concentrations;
2. Identified at the beginning of the evaluation;
3. Numeric goals that can be modified throughout the course of the investigation and engineering evaluation as site-specific information is accumulated; and
4. In their final form, they will serve as starting objectives for site remediation.

2.4.2 Tables 2.3, 2.4 and 2.5 list the physical and chemical-specific interim site PRGs for groundwater, surface water and soil, respectively. Soil was shown in the HHRA to not pose an unacceptable risk to human health. After the HHRA was completed, NYSDEC promulgated new risk-based soil cleanup objectives under Title 6 New York Codes Rules and Regulations Part 375. Subsequent to the HHRA, NYSDEC requested that soil concentrations at AOC 1 be compared to the Part 375 soil cleanup objectives. Part 375 industrial land use cleanup objectives were exceeded for PAHs and/or arsenic at 7 soil sample locations within the limits of AOC 1. Therefore, although the HHRA concluded there was no soil risk, the subsequent application of the new Part 375 risk-based soil cleanup objectives identified soil samples that exceed the Part 375 industrial land use criteria (and site-specific soil background concentrations).

2.5 REMEDIAL ACTION OBJECTIVES

2.5.1 RAOs were developed for the purpose of evaluating the applicability of remedial technologies and the effectiveness of remedial alternatives. These objectives consist of media-specific goals for protecting human health and the environment and for meeting ARARs to the extent practicable in a cost-effective manner.

2.5.2 The RAOs are established herein based on site-specific information, including the nature and extent of chemical constituents, PRGs, existing site conditions, and future land use plans. RAOs typically focus on controlling exposure of receptors (people in contact with AOC 1) to chemicals of concern via exposure routes such as dermal contact, ingestion, and inhalation. The RAOs also focus on controlling the release of hazardous substances into the environment (soils and groundwater). Technical feasibility and practicality of achieving the PRGs were also considered in developing the RAOs. Final RAOs are usually presented, along with the preferred remedy, by the lead agency (USACE) in conjunction with other State and local government entities with jurisdiction.

2.5.3 RAOs for AOC 1 are as follows, and assumes commercial land use of the property for the foreseeable future:

- Eliminate or minimize the exposure route hazards posed by impacted groundwater and surface water at the site;
- Minimize offsite migration of contaminants; and
- Maintain Class C surface water quality at the site.

Table 2.1
Former Schenectady Army Depot - Voorheesville Area, AOC 1
Summary of Applicable ARARs and TBCs

Media	Requirement Title/Pertinent Provision	Adopting Authority	Requirement Citation	ARAR Status & Applicability	Compliance with ARARs
Chemical Specific ARARs & TBCs					
Surface Water	Water Quality Standards - Surface Waters, Class C	NYSDEC	6 NYCRR Part 703, Table 1	ARAR for all Remedial Alternatives (Alternatives 1-4)	With the April 2010 surface water sampling in the pond, BEHP was not detected and this ARAR is satisfied.
Soil	Part 375 Soil Cleanup Objectives	NYSDEC	6 NYCRR Part 375	ARAR for all Remedial Alternatives (Alternatives 1-4)	Alternatives 1 and 2 do not mee tthis ARAR. Alternatives 3 and 4 meet the ARAR.
Groundwater	Groundwater Maximum Contaminant Level (MCL)	USEPA	40 CFR Part 141, Subparts G and I	ARAR for all Remedial Alternatives (Alternatives 1-4)	Alternative 1 does not meet the groundwater ARARs. Alternatives 2, 3 and 4 eliminate the route of exposure and therefore the ARAR does not apply.
Groundwater	Groundwater Quality Standards, Class GA	NYSDEC	6 NYCRR Part 703, Table 1	ARAR for all Remedial Alternatives if more stringent than MCLs (see Table 2.2) (Alternatives 1-4)	Alternative 1 does not meet the groundwater ARARs. Alternatives 2, 3 and 4 eliminate the route of exposure and therefore the ARAR does not apply.
Action Specific ARARs & TBCs					
Land	Landfill Requirements for Closure/Post-Closure Care	USEPA	40 CFR Part 264.310	ARAR for Remedial Alternatives that apply the Containment Presumptive Remedy (Alternatives 3 and 4)	This ARAR does not apply to Alternatives 1 and 2. Alternatives 3 and 4 will comply with the ARAR, if implemented.

Table 2.2
Former Schenectady Army Depot - Voorheesville Area, AOC 1
Summary of Chemical Specific ARARs and TBCs for Groundwater

Chemical Parameter	Federal MCL (ug/L)	NYSDEC Class GA GW Standards (ug/L)	Maximum Concentration Most Recently Detected at AOC 1		Rationale for ARAR Selection
			(ug/L)	Well Number	
VOLATILES					
Trichloroethene (TCE)	**5**	5	44	ACE-2*	MCL - equal to NYSDEC Class GA
cis-1,2-Dichloroethene (DCE)	70	**5**	530	ACE-2(1)*	NYSDEC Class GA GW Standards - more stringent than federal MCL
trans-1,2-Dichloroethene (DCE)	100	**5**	530	ACE-2(1)*	NYSDEC Class GA GW Standards - more stringent than federal MCL
1,2-Dichloroethane (DCA)	5	**0.6**	1.4 (J)	AMW-2*	NYSDEC Class GA GW Standards - more stringent than federal MCL
Vinyl Chloride (VC)	**2**	2	160	ACE-2*	MCL - equal to NYSDEC Class GA
METALS					
Arsenic	**10**	25	82	MW-2AMW8(2)	MCL - more stringent than state standards
Lead	**15**	25	79	ACE-2(2)	MCL - more stringent than state standards

Notes:
* Sample collected in 2006
1 - concentration is total DCE
2 - Metals sampled during 1996 RI; there are the most recent data availavble for these wells
MCL - maximum contaminant level
ug/L - micrograms per liter
GW - Groundwater
GV - NYSDEC Class GA GW Guidance Value (if no standard)
J - Estimated Value
Selected ARAR in **bold**

Table 2.3
Former Schenectady Army Depot - Voorheesville Area, AOC 1
Summary of Interim PRGs for Groundwater

Chemical Parameter	PRG (ug/L)
VOLATILES	
Trichloroethene (TCE)	5
1,2-Dichloroethene (total)	5
1,2-Dichloroethane (DCA)	0.6
Vinyl Chloride (VC)	2
METALS	
Arsenic	10
Lead	15

Note:
ug/L - micrograms per liter

Table 2.4
Former Schenectady Army Depot - Voorheesville Area, AOC 1
Summary of Interim PRGs for Surface Water

Chemical Parameter	PRG: NYSDEC Class C Surface Water Standards
bis(2-Ethylhexyl) phthalate	0.6 A(C)

A(C) - Protection for Fish Propagation

Table 2.5
Former Schenectady Army Depot - Voorheesville Area, AOC 1/7
Summary of Soil Cleanup Objectives

COMPOUND	NYSDEC Part 375 Industrial Land Use Cleanup Objectives (ug/kg)
SEMIVOLATILES	
Benzo(a) anthracene	11,000
Benzo(a) pyrene	1,100
Benzo (b)fluoranthene	11,000
Chrysene	110,000
Benzo(k) flouranthene	110,000
Dibenz(a,h)anthracene	1,100
Indeno(1,2,3-cd)pyrene	11,000
PESTICIDES	
4,4'-DDE	120,000
gamma-Chlordane	NC
4,4'-DDD	180,000
4,4'-DDT	94,000
alpha-Chlordane	NC
METALS (mg/kg)	
Arsenic	16
Cadmium	60
Chromium	6,800
Copper	10,000
Iron	NC
Lead	3,900
Manganese	10,000
Nickel	10,000
Zinc	10,000

ug/kg = micrograms per kilogram
mg/kg = milligrams per kilogram
NC - no cleanup objective available

SECTION 3

IDENTIFICATION AND SCREENING OF CONTROL METHODS AND REMEDIAL TECHNOLOGIES

3.1 INTRODUCTION

3.1.1 This section identifies and evaluates control methods and remedial technologies potentially capable of achieving the RAOs and PRGs identified in Section 2. These control methods and remedial technologies (collectively referred to as *technologies* in the remainder of this report) are identified based on a variety of technical sources, current and anticipated future site use, and site physical and chemical data. The most appropriate technologies are retained for use in developing remedial alternatives.

3.1.2 Conventional as well as innovative technologies are presented in this section. Innovative technologies are defined as those with limited full-scale experience and/or performance and cost data.

3.2 SOURCES FOR IDENTIFYING POTENTIALLY APPLICABLE TECHNOLOGIES

3.2.1 Information used in the identification and screening of potentially applicable technologies was gathered from a variety of sources, including technical reports, vendors, and contractors experienced with technology application. In addition, the following literature sources and databases were reviewed:

- USEPA Reach-It Program (http://www.epa.gov/tio/reachit.html).
- Federal Remediation Technologies Roundtable web site (http://www.frtr.gov).
- Hazardous Substance Research Center South and Southwest (HSRC, 2002) web site (http://www.hsrc-ssw.org/).
- USEPA Superfund Innovative Technologies Evaluation Program (http://www.epa.gov/ORD/SITE/).
- USDOE Office of Environmental Management website (http://www.em.doe.gov/).

Many of these web sites include portals that allow access to additional databases.

3.3 GENERAL RESPONSE ACTIONS

General response actions are broad categories of media-specific actions that, by themselves or in combination with other general response actions, will satisfy the RAOs. General response actions that are potentially applicable at AOC 1 are (Table 3.1):

- No action
- Land Use Controls

- Soil Containment
- Groundwater Treatment

3.4 DEVELOPMENT AND SCREENING OF TECHNOLOGIES

3.4.1 Each general response action can be implemented using one or more remedial technologies. Potentially applicable technologies associated with the general response actions listed above are identified and screened in this section of the FFS. Technologies are screened with respect to effectiveness, implementability, and relative cost:

- Effectiveness – Ability to protect human health and the environment by reducing the toxicity, mobility or volume of contaminant.
- Implementability – Consideration of both technical and administrative feasibility.
- Costs – Capital and operating costs. A technology should not be an order of magnitude more than other technologies providing comparable performance.

3.4.2 The screening of technologies, including the technical justification for retaining or not retaining each technology, is presented in Table 3.2. The retained technologies are summarized in Table 3.3 and are described in Sections 3.5 through 3.8. Each retained technology has been incorporated into one of the remedial alternatives discussed in Section 3.9.

3.5 NO ACTION

Under "No Action," no new remedial action or no further action of any type would be implemented. The no action alternative reflects site conditions as described in the RI report(s). The no-action alternative would be appropriate if the site posed no unacceptable current or future threat to human health or the environment, or if a previous response had eliminated the need for further remedial response. Generally, where land use controls or remediation are required to control risks, the no-action remedy is inappropriate. Nonetheless, no action is required to be retained as a general response action to serve as a baseline for comparison with other technologies.

3.6 LAND USE CONTROLS

LUCs include any type of physical, legal,or administrative mechanism that restricts the use of, or limits access to, real property to prevent or reduce risks to human health, safety, and the environment. LUCs are considered response actions under CERCLA, and, as such, must be coordinated with the current landowner, regulatory agencies, and appropriate local authorities. The objective of LUCs is to ensure that future land use remains compatible with the land use that was the basis for the evaluation, selection, and implementation of the response action. By themselves, LUCs may not always effectively reduce effects on the environment or comply with remediation requirements, but they can be implemented effectively to supplement active response methods or technologies as part of a total remediation solution. The cost to implement LUCs can vary widely because of site-specific circumstances, and there are often economical methods for reducing the potential for human exposure to affected media. LUCs that are potentially applicable to AOC 1 are government controls, property use or access controls, and enforcement orders as described in the following subsections.

3.6.1 Administrative Controls

Administrative controls include federal, state, and local government limits on site use. They can include requirements to control site use or site modifications and are implemented through zoning codes, property easements, or permits for building or excavation. These controls can be implemented at the discretion of the governing agency with jurisdiction over the site. They can be implemented by agency action or as court injunctions filed with a court of law. Government controls are retained for further evaluation. Administrative controls also include covenants in deeds for individual properties, typically implemented by the property owners. They can limit, for example, future site use, restrict use of surface soil or groundwater, prohibit well drilling, and define precautions needed for intrusive activities onsite. Such property controls are instituted with an environmental easement, and can be an effective and low-cost method for preventing human exposure to affected media. One example of property control includes the mandatory use of vapor intrusion barriers in new buildings. Property controls and environmental easements are retained for further evaluation.

3.6.2 Legal Controls

Legal controls are government-sponsored measures such as administrative orders that prevent actions that would affect or damage the completed remedy. These tools are directed to the site's responsible parties to require them to take actions that protect human health and the environment. Enforcement tools are implemented at the discretion of the lead enforcement agency (NYSDEC for this site) and are retained for further evaluation.

3.6.3 Physical Controls

Physical controls, such as fences and signs, will be maintained by the property owner. The Northeastern Industrial Park currently maintains a security fence around the perimeter of the property and has posted "No Trespassing" on the fence, and these will continue to be maintained by the property owner.

3.7 SOIL CONTAINMENT TECHNOLOGIES

Soil covers can reduce potential exposure by preventing direct contact with residuals. A soil cover or an impermeable cap can be covered with a vegetative surface layer, typically grass, or with crushed stone or asphalt. The surface layer of any cover or cap should be graded and maintained to control runoff, prevent flooding impacts, and minimize cap erosion. Various types of materials can be used as a cover or cap, such as soils or alternate fill materials such as fly ash. Soil containment technologies were retained for consideration to prevent direct contact with impacted surface soils. Figure 3.1 shows a typical permeable soil cover, and Figure 3.2 shows a typical impermeable cap. Both soil covers and impermeable caps are retained for further evaluation and are part of the Containment Presumptive Remedy described in Section 2.1 of this report.

3.8 GROUNDWATER TREATMENT TECHNOLOGIES

3.8.1 *In Situ* Groundwater Treatment

3.8.1.1 **Monitored Natural Attenuation (MNA)**. Natural attenuation of chlorinated hydrocarbons such as TCE and its derivatives occurs through a process called anaerobic reductive dechlorination. The transformation of chlorinated ethenes via reductive dechlorination is shown in Figure 3.3. Dechlorination is sequential and concentrations of TCE and its dechlorinated products increase and decrease as depicted in Figure 3.3.

3.8.1.2 The schematic shows the theoretical concentrations TCE and its products expected during reductive dechlorination of chlorinated ethenes as outlined in the following steps:

1. TCE is the predominant contaminant source.
2. As TCE is reduced, DCE levels increase.
3. DCE decreases as it is converted to VC.
4. Finally, VC is further converted to ethene/ethane and other non-toxic by-products.

3.8.1.3 In reductive dechlorination, chlorinated hydrocarbons act as electron acceptors, where a chlorine atom is replaced by a hydrogen atom. The hydrogen atom comes from the fermentation of other substrates, called electron donors. The evidence of natural attenuation of TCE includes production of degradation byproducts, including the increased concentrations of less-chlorinated hydrocarbons (such as DCE and VC), as well as the presence of metabolic byproducts, including ethane, methane, chloride, and alkalinity.

3.8.1.4 At sites where there is evidence that natural attenuation is already occurring, additives can be introduced to the aquifer to decrease remediation time by increasing the rate of reductive dechlorination. A common additive is emulsified vegetable oil, which dissolves slowly providing a carbon and energy source to accelerate the biodegradation of the chlorinated solvents. The vegetable oil can be added to the treatment zones through conventional wells or using direct push technology.

3.8.1.5 **Chemical Oxidation**. Oxidation is a “chemical process in which electrons are transferred from an atom, ion or compound” (TOSC, 2004). Chemical oxidation introduces one or more chemical to the affected media to induce treatment. The *in situ* chemical oxidation process is designed to remove organic contaminants in groundwater. Oxidants frequently used in chemical oxidation include hydrogen peroxide, potassium permanganate, persulfate, and ozone (USEPA, 1998). Hydrogen peroxide is most commonly used to treat TCE and its derivatives. In the reaction, known as Fenton’s reaction, hydrogen peroxide combines with soluble iron to produce hydroxyl radicals:

$$\mathbf{Fe^{+2} + H_2O_2 \rightarrow Fe^{+3} + OH^- + OH^\bullet}$$

where H_2O_2 is hydrogen peroxide, Fe^{+2} is ferrous iron, Fe^{+3} is ferric iron, $OH^\bullet$ is hydroxyl free radical and OH^- is hydroxide iron. Hydroxyl free radicals are very powerful and short-lived oxidizers, and attack the carbon double bonds of the chlorinated hydrocarbon molecule. The ferrous iron is introduced as a catalyst for the reaction. The stoichiometric relationship between TCE oxidation and hydrogen peroxide consumption is the following:

$$\mathbf{C_2Cl_3H + 3H_2O_2 \rightarrow 2CO2 + 2\ H_2O + 3Cl^- + 3H^+}$$

where C_2Cl_3H is TCE, H_2O_2 is hydrogen peroxide, CO_2 is carbon dioxide, $3Cl^-$ is the chloride ion, and $3H^+$ is hydrogen ion (ISOTEC, 2006).

3.8.1.6 Conventional Fenton-based oxidation reactions require acidic conditions in order to break down chlorinated hydrocarbons. ISOTEC has created a process that is effective in neutral (pH of 7) conditions. ISOTEC's oxidation method consists of injecting stabilized hydrogen peroxide and complexed iron catalysts into contaminated aquifers and vadose zones (ISOTEC, 2006). Figure 3.4 provides an overview of the chemical oxidation injection process.

3.8.1.7 Although chemical oxidation is a retained technology for contaminated groundwater at AOC 1, it is also effective as a remedial technology for saturated soils contaminated with VOCs. Therefore, chemical oxidation applications in the saturated zone reduce organic contaminants in groundwater and soils.

3.9 REMEDIAL ALTERNATIVES

3.9.1 This section presents the development of four remedial alternatives to meet the RAOs:

- Eliminate or minimize the exposure route hazards posed by impacted groundwater and surface water at the site;
- Minimize offsite migration of contaminants; and
- Maintain Class C surface water quality at the site.

3.9.2 The potentially applicable technologies for meeting the RAOs have been incorporated into the four alternatives described in this subsection. The alternatives include various combinations of the viable groundwater treatments described in Sections 3.5 through 3.8. The only soil remediation technology considered is a cap/cover in accordance with the Containment Presumptive Remedy being applied at the site. As stated in Section 2, no human health risks were found at AOC 7 and no remedial alternatives include action at AOC 7. The ecological health of the AOC 1 and 7 sites appear normal given the site use and setting, as determined by the qualitative ecological risk assessment completed during the RI. A brief description of each alternative is provided below:

3.9.3 **Alternative 1 – No Action** (allow the site to remain as is). This alternative is retained as a baseline to compare with other alternatives.

3.9.4 **Alternative 2 – Groundwater MNA/LUCs**

- Groundwater MNA
  - Perform annual groundwater sampling to evaluate and monitor attenuation of contaminants. Analyze samples for VOCs, metals, and natural attenuation parameters.

  - o Provide annual report to NYSDEC including sample locations, analyses performed, analytical results, comparison to baseline and previous sampling events, and projected time for all contaminants to reach remedial goals. After the first several years of sampling, it is anticipated that sampling frequency would decrease to once every five years.
  - o Continue monitoring until chlorinated ethenes remedial objectives are met.
  - o Conduct five-year engineering evaluation reviews until all ARARs are met.
- Implement LUCs
  - o Granting of an Environmental Easement to the State of New York by the property owner, with periodic certification that terms of easement are effectively implemented.
  - o Vapor intrusion risks should be considered during planning for any new (future) construction of buildings in the vicinity of AOC 1.
  - o Restrict site to industrial use and prohibit use of site groundwater for drinking purposes. A review will be conducted every five years to ensure that the use controls remain in place and are effective.
  - o Prohibit construction of buildings in the capped/covered areas at AOC 1.
  - o Posting "No Trespassing" signs to minimize/prevent unauthorized access to the site.

3.9.5 **<u>Alternative 3</u> – Groundwater MNA/Landfill Cover and Cap /LUCs**

- Landfill Cap

  The impermeable landfill cap would be applied to the approximately 2.5-acre area covering the groundwater plume (Figure 3.6). The landfill cap is more protective than a soil cover and was chosen for this area to minimize water infiltration through the most contaminated soil/fill area and into the groundwater plume. The landfill source for the groundwater plume was not fully characterized in accordance with application of the presumptive remedy. Any landfill cap constructed on-site would meet 40 CFR 264.310 and 6 NYCRR 373-3.14 requirements, which include cap specifications. Note that areas are denoted for evaluation and estimating purposes and may be changed in the field according to actual conditions and landfill boundaries:
  - o Lay 6-inch sub-base over approximately 110,250 square feet (approximately 2,000 cubic yards).
  - o Install geocomposite gas vent layer over the sub-base and a 40-mil linear low density polyethylene (LLDPE) textured geomembrane over the gas vent layer (approximately 110,250 square feet each).
  - o Install geocomposite drainage layer over the geomembrane.
  - o Cover drainage layer with a 2-foot barrier protection layer (approximately 8,200 cubic yards).

   - Cover barrier layer with 6 inches of topsoil (approximately 2,000 cubic yards). Grade for restoration and proper drainage and seed for appropriate vegetation for erosion control based on the site conditions.
   - Periodic inspection and operation-maintenance over a 30-year period.\
   - Conduct five-year engineering evaluation reviews until all ARARs are met.

- Soil Cover

  The permeable soil cover is estimated for the approximately 8-acre landfill area in Figure 3.6 that is not affecting groundwater conditions. The soil cover would be provided to improve the current soil cover at the landfill and to minimize human and animal contact with the soil. Note that areas are denoted for evaluation and estimating purposes and could be changed in the field according to actual conditions and landfill boundaries:

   - Cover approximately 355,700 square feet (shown in Figure 3.6) with 1 foot of soil (approximately 13,200 cubic yards). Cover the soil layer with a 6-inch layer of topsoil (approximately 6,600 cubic yards).
   - Grade for restoration and proper drainage, and seed the area with appropriate vegetation for erosion control based on the site conditions.
   - Periodic inspection and operation-maintenance over a 30-year period.

- Groundwater MNA

   - Perform annual groundwater sampling of groundwater plume at AOC 1 to evaluate and monitor attenuation of contaminants. Analyze samples for VOCs and natural attenuation parameters.
   - Provide annual report to NYSDEC including sample locations, analyses performed, analytical results, comparison to baseline and previous sampling events, and projected time for all contaminants to reach remedial goals. After the first several years of sampling, it is anticipated that sampling frequency would decrease to once every five years.
   - Continue monitoring until chlorinated ethenes remedial objectives are met.

- Implement LUCs

   - Granting of an Environmental Easement to the State of New York by the Property owner, with periodic certification that terms of easement are effectively implemented.
   - Vapor intrusion risks should be considered during planning for any new (future) construction of buildings in the vicinity of AOC 1.
   - Restrict site to industrial use and prohibit use of site groundwater for drinking purposes. A review will be conducted every five years to ensure that the use controls remain in place and are effective.
   - Prohibit construction of buildings in the capped/covered areas at AOC 1.

     Post “No Trespassing” signs to minimize/prevent unauthorized access to the site.

3.9.6 **Alternative 4 – *In Situ* Chemical Oxidation of Groundwater/Landfill Cover and Cap/ LUCs**

- Landfill Cap (See Figure 3.6)

  The landfill source for the groundwater plume was not fully characterized in accordance with application of the presumptive remedy. The landfill cap is more protective than a soil cover and was chosen for this area to minimize water infiltration through the most contaminated soil/fill area:

  - Lay 6-inch sub-base over approximately 110,250 square feet (approximately 2,000 cubic yards).
  - Install geocomposite gas vent layer over the sub-base and a 40-mil LLDPE textured geomembrane over the gas vent layer (approximately 110,250 square feet each).
  - Install geocomposite drainage layer over the geomembrane.
  - Cover drainage layer with a 2-foot barrier protection layer (approximately 8,200 cubic yards).
  - Cover barrier layer with 6 inches of topsoil (approximately 2,000 cubic yards). Grade for restoration and proper drainage and seed the area with appropriate vegetation for erosion control based on the site conditions.
  - Periodic inspection and operation-maintenance for a 30-year period.
  - Conduct five-year engineering evaluation reviews until all ARARs are met.

- Soil Cover (see Figure 3.6)

  A soil cover is proposed to improve the existing, deteriorated soil cover over the landfill at AOC 1 to minimize human and animal contact with the soil:

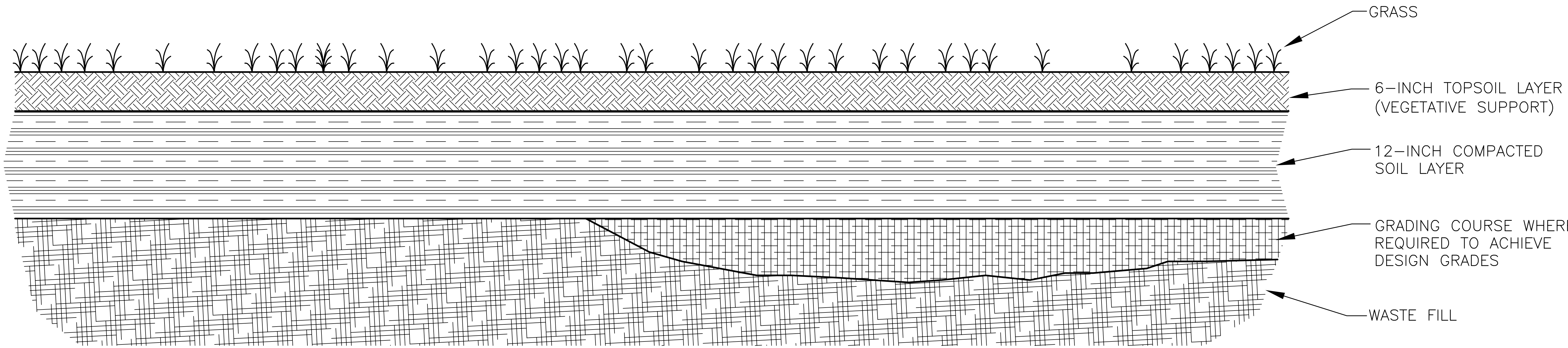
  - Cover approximately 355,700 square feet (shown in Figure 3.6) with 1 foot of soil (approximately 13,200 cubic yards). Cover the soil layer with a 6-inch layer of topsoil (approximately 6,600 cubic yards).
  - Grade for restoration and proper drainage and seed the area with appropriate vegetation for erosion control based on the site conditions.
  - Periodic inspection and operation-maintenance for a 30-year period.

- *In situ* Chemical Oxidation Treatment of Groundwater

  The landfill source for the groundwater plume was not fully characterized in accordance with application of the presumptive remedy. Chemical oxidation was chosen to remediate the main contaminants, TCE and its derivatives, present in the groundwater plume. Metals in the groundwater plume would not be affected by this treatment:

  - Conduct pilot demonstration of an area of approximately 5,000 square feet (0.1 acres) to ensure chemical oxidation could be applied at the landfill (inherent heterogeneity of landfill may preclude the use of chemical oxidation) and refine treatment parameters for full-scale remediation.

        - Inject reagents into subsurface at eleven locations. Injections would be advanced by means of direct-push injection to the fill/glacial till interface (approximately 10 feet).
        - Monitor test by collecting groundwater samples from existing monitoring wells located within the demonstration area. It is anticipated that samples would be collected from 3 wells and analyzed twice during the demonstration (baseline and post-first injection events). Groundwater samples would be analyzed for VOCs.
    - Conduct full-scale chemical oxidation design using data from the pilot demonstration.
        - Inject reagents into subsurface at approximately 178 locations, based on a 25-foot grid throughout the approximately 2-acre area in the southern portion of the landfill where the groundwater plume exists. This number would be refined once the demonstration has been completed. Injections would be advanced by means of direct-push injection to the fill/glacial till interface.
        - Collect groundwater samples from each existing monitoring well within the injection area and analyze for VOCs.
    - Based on contaminant levels, it is anticipated that only one injection would be needed at the landfill (ISOTEC, 2006).
- Implement LUCs
    - Granting of an Environmental Easement to the State of New York by the property owner, with periodic certification that terms of easement are effectively implemented.
    - Vapor intrusion risks should be considered during planning for any new (future) construction of buildings in the vicinity of AOC 1.
    - Restrict site to industrial use and prohibit use of site groundwater for drinking purposes. A review will be conducted every five years to ensure that the use controls remain in place and are effective.
    - Prohibit construction of buildings in the capped/covered areas at AOC 1.
    - Post “No Trespassing” signs to minimize/prevent unauthorized access to the site.



TYPICAL SOIL COVER SYSTEM DETAIL

NOT TO SCALE

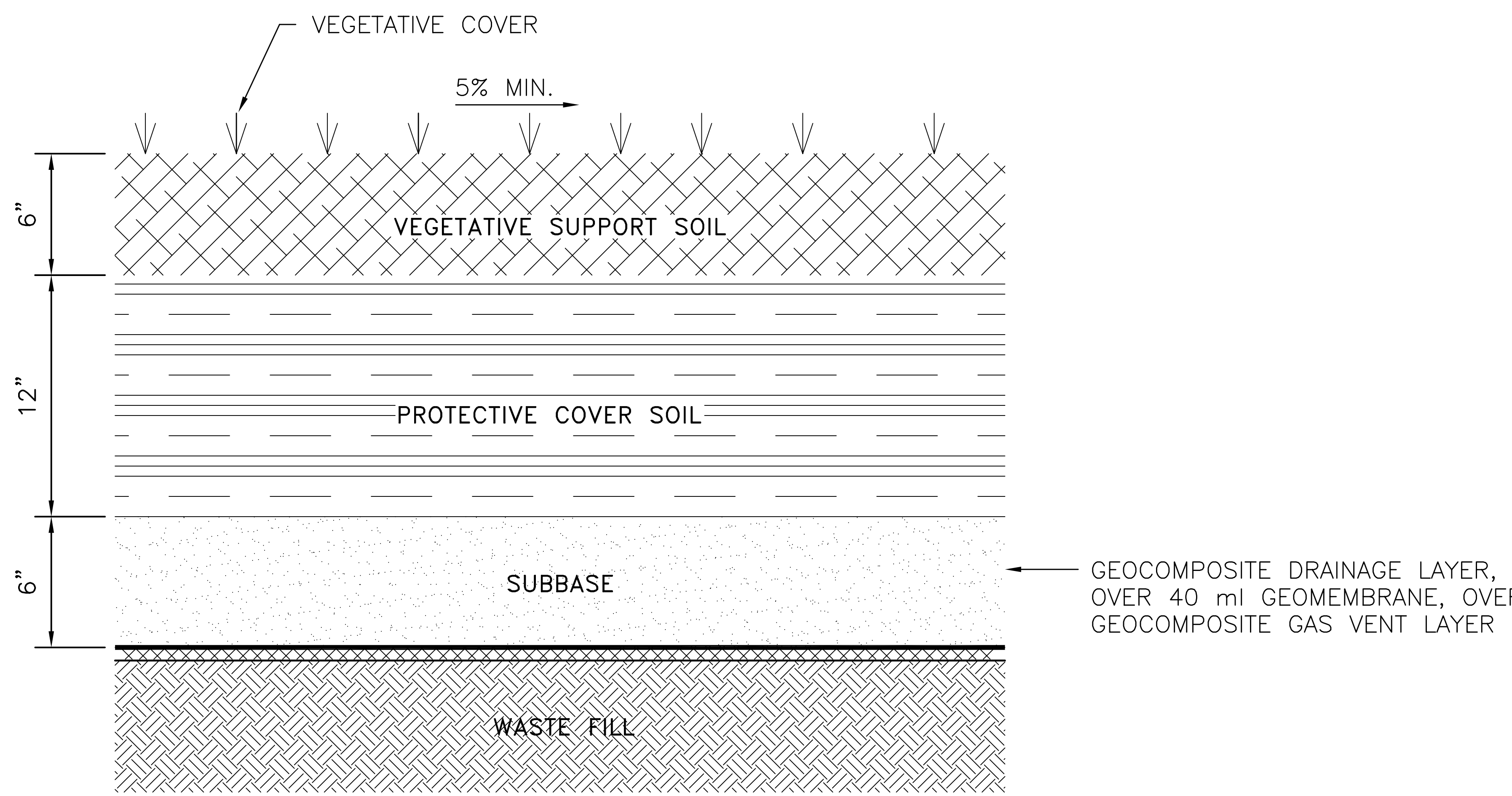
FIGURE 3.1

FORMER SADVA
GUILDERLAND, NEW YORK

TYPICAL PERMEABLE LANDFILL COVER CROSS–SECTION

PARSONS
290 ELWOOD DAVIS ROAD, SUITE 312, LIVERPOOL, N.Y. 13088, PHONE: 315–451–9560

P:\743440 (SADVA)\CAD\CE\RI–FS\AOC1–7\FIGURE 3.1.DWG 6/5/07



TYPICAL FINAL CAP DETAIL

NOT TO SCALE

FIGURE 3.2

FORMER SADVA
GUILDERLAND, NEW YORK

TYPICAL LANDFILL CAP CROSS-SECTION

PARSONS
290 ELWOOD DAVIS ROAD, SUITE 312, LIVERPOOL, N.Y. 13088, PHONE: 315-451-9560

P:\743440 (SADVA)\CAD\CE\RI-FS\AOC1-7\FIGURE 3.2.DWG 8/29/07

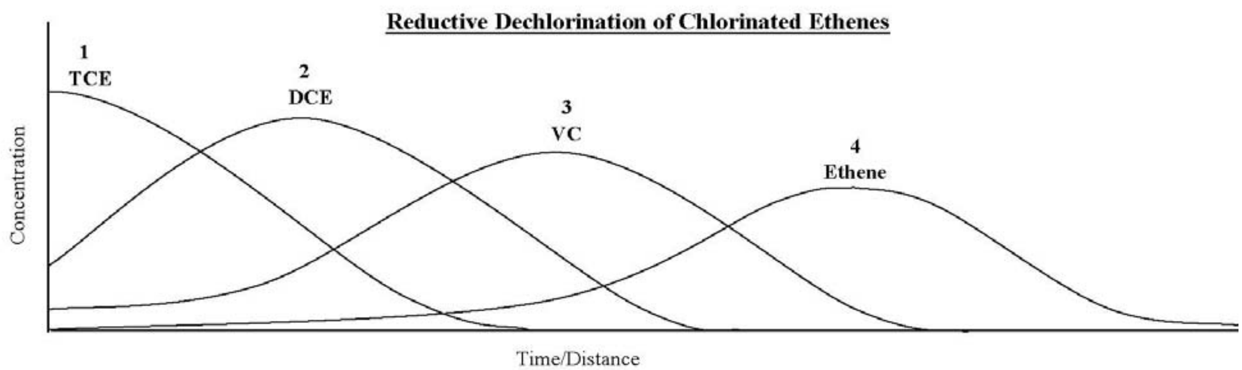
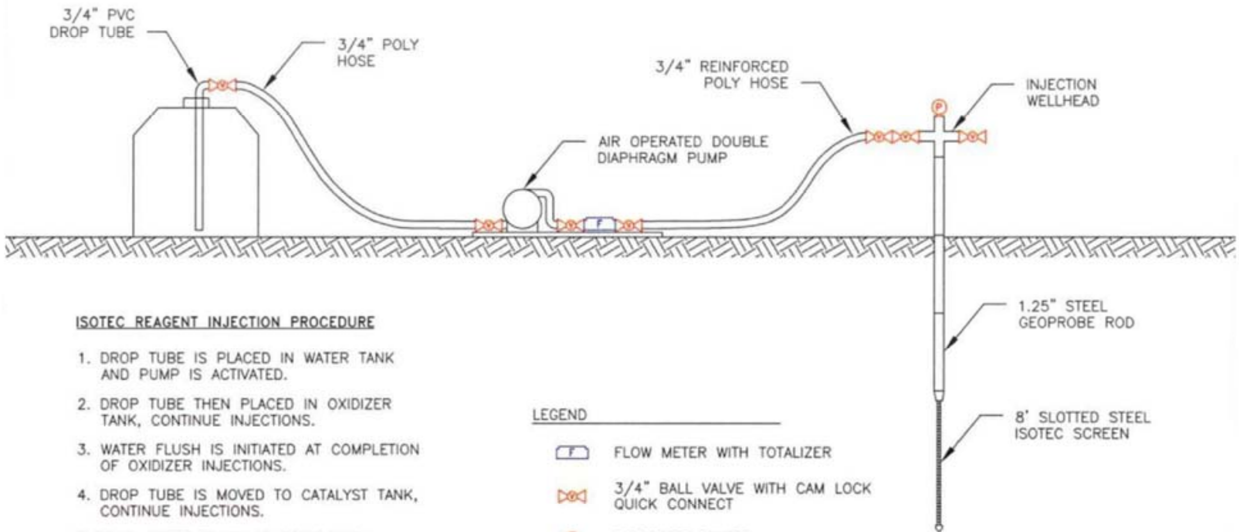


Figure 3.3 Reductive Dechlorination of Chlorinated Ethenes



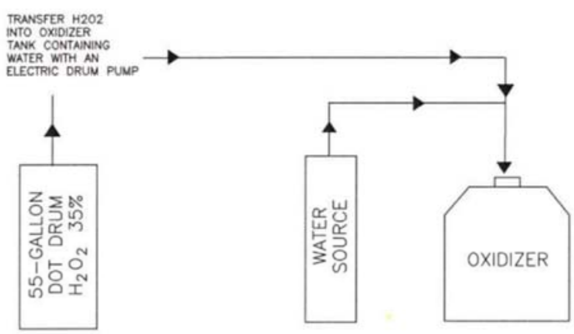
ISOTEC REAGENT INJECTION PROCEDURE

1. DROP TUBE IS PLACED IN WATER TANK AND PUMP IS ACTIVATED.
2. DROP TUBE THEN PLACED IN OXIDIZER TANK, CONTINUE INJECTIONS.
3. WATER FLUSH IS INITIATED AT COMPLETION OF OXIDIZER INJECTIONS.
4. DROP TUBE IS MOVED TO CATALYST TANK, CONTINUE INJECTIONS.
5. FINAL WATER FLUSH IS COMPLETED.

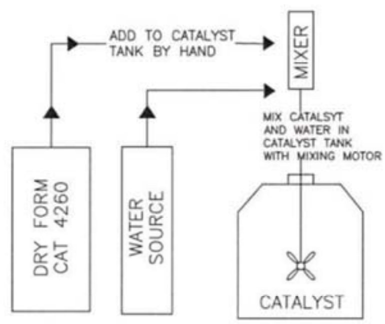
LEGEND

- F: FLOW METER WITH TOTALIZER
- 3/4" BALL VALVE WITH CAM LOCK QUICK CONNECT
- P: PRESSURE GAUGE

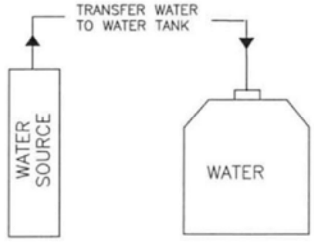
OXIDIZER TANK PROCEDURES



CATALYST TANK PROCEDURES



WATER TANK PROCEDURES



DETAIL SOURCE: ISOTEC

FIGURE 3.4

FORMER SADVA
GUILDERLAND, NEW YORK

CHEMICAL OXIDATION PROCESS

PARSONS
290 ELWOOD DAVIS ROAD, SUITE 312, LIVERPOOL, N.Y. 13088, PHONE: 315-451-9560

P:\743440 (SADVA)\CAD\CE\RI-FS\AOC1-7\ISOTEC.DWG 6/25/07

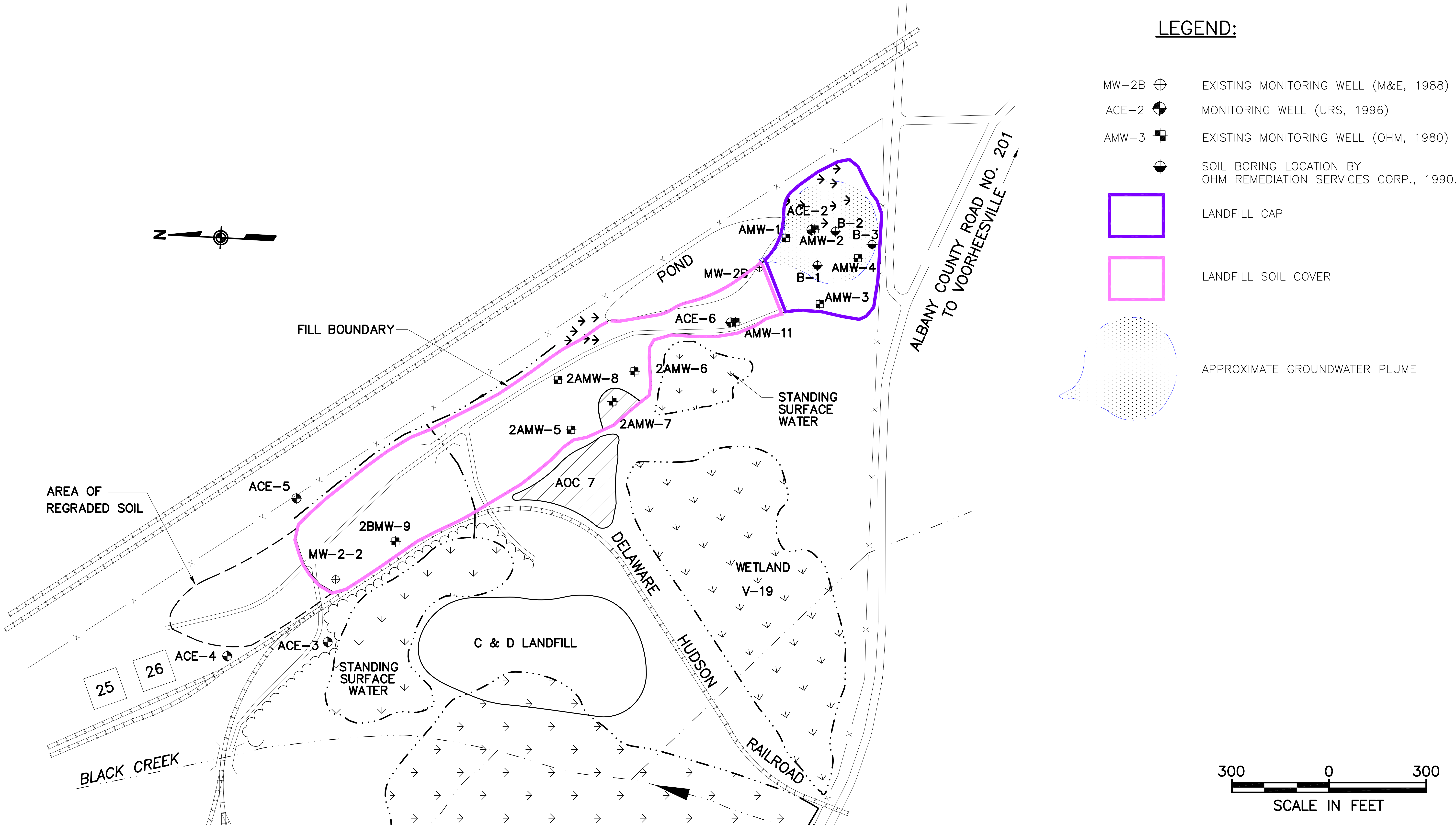


FIGURE 3.5

U.S. ARMY SOUTHERN LANDFILL
LANDFILL COVER AND CAP
FOR ALTERNATIVES 3 THROUGH 4

URS CONSULTANTS, INC.

US Army Corps of Engineers

MALCOLM PIRNIE

TABLE 3.1
GENERAL RESPONSE ACTIONS
APPLICABLE TO SCHENECTADY ARMY DEPOT SITE AOC 1

GENERAL RESPONSE ACTION/ TECHNOLOGY TYPE	APPLICABILITY TO REMEDIAL ACTION OBJECTIVE
No Action	No activities conducted to address contamination. The no action response is required for analysis.
Land Use Controls (LUCs)	Implementation of administrative or legal methods implemented by the owner or governing entities to minimize human exposures to site-related residuals. LUCs typically supplement active response actions by reducing effects to human health
Soil Containment	Isolation of contaminated media to reduce potential exposure. A soil cover or an impermeable cap can be covered with a vegetative surface layer, typically grass, or with crushed stone or asphalt. Soil containment is part of the Containment Presumptive Remedy being applied at AOC 1.
Groundwater Treatment	Treatment of groundwater would reduce the toxicity or mobility of contaminants, thereby reducing/eliminating risks. Treatment may be performed in-situ or ex-situ, and includes monitored natural attenuation.

TABLE 3.2
IDENTIFICATION AND SCREENING OF TECHNOLOGY TYPES AND PROCESS ACTIONS
ASSOCIATED WITH SCHENECTADY ARMY DEPOT SITE AOC 1

General Response Action	Remedial Technology	Process Options	Effectiveness	Technically Implementable	Administrative Implementability	Relative Cost	Retained for Further Evaulation?
No Action	None	None	None	Yes	Good	None	Yes
Land use Controls	Access Control	Fencing/Posting, Inclusion of Vapor Intrusion Barrier on Any Future Buildings	Does not reduce contamination; effective when used with other technologies.	Yes	Good	Varies	Yes
Land use Controls	Runoff Controls	Revegetation, Grading	runoff. Can be used along the perimeter to keep offsite runoff from migrating onsite and to control onsite runoff on caps/covers.	Yes	Good	Low	Yes
Soil Containment	Containment	Soil Cover	Effective for isolating shallow material from exposure. Limited effectiveness for minimizing infiltration	Yes	Good	Low	Yes
Soil Containment	Containment	Impermeable cap	Most effective and reliable as a physical and hydraulic impermeable barrier. Effecive at minimizing direct contact and infiltration. Not effective at controlling impacts from soil below the water table to downgradient groundwater	Yes	Good	Medium	Yes
GW Containment	Vertical Subsurface Barriers	Grout Curtain/Slurry Walls/Joint Sheet Piling	Potentially effective when used with other technologies if barrier can be keyed to continuous impermeable subsurfce zone. Must be used with hydraulic controls to prevent surface flooding or migration of plume around boundaries of barrier; no treatment for contaminants.	Yes	Good	High	No
GW Containment and Ex-Situ Treatment	Hydraulic Controls	Extraction Wells/Trench with Ex-Situ Treatment	Effective for some ex-situ GW technologies such as pump and treat, but would take up to 30 years and could be very costly depending on duration. Aquifer is slow to recharge and does not have optimal properties for pumping. Could interfere with owner's plans for development of property.	Yes	Good	Low to High	No
In-Situ GW Treatment	Physical-Chemical	Oxidation	Applicable to the GW contaminants provided soil type is amenable to allowing oxidant to reach impacted groundwater.	Yes	Good	Medium	Yes
In-Situ GW Treatment	Physical-Chemical	Permeable Reactive Barrier	Not effective if plume is not migrating.	Yes	Good	Medium to High	No
In-Situ GW Treatment	Physical-Chemical	Air Sparging/Vapor Extraction	Not effective if no substantial vadose zone present.	Yes	Poor	Medium	No
In-Situ GW Treatment	Biological	Monitored Natural Attenuation	Effective at degrading chlorinated hydrocarbons under anaerobic conditions.	Yes	Good	Low	Yes
In-Situ GW Treatment	Thermal	Steam Sparging/Vapor Phase Extraction	Effective in areas with high contaminant concentrations.	Yes	Poor	Medium	No

Notes:
GW - Ground water

TABLE 3.3
SUMMARY OF RETAINED REMEDIAL ALTERNATIVES
ASSOCIATED WITH SCHENECTADY ARMY DEPOT SITE AOC 1

ALTERNATIVE			
NUMBER	NAME	DESCRIPTION	COMMENTS
1	No Action	No activities conducted to address contamination	Retained for comparison purposes
2	Groundwater MNA/LUCs	Alternative would include monitoring and sampling of groundwater for attenuation of chlorinated VOCs	Does not apply the Presumptive Remedy for the site; MNA estimated to take 50 years at the site to meet PRGs; metals in groundwater addressed through LUCs which would limit contact. Does not meet surface water ARARs.
3	Groundwater MNA/Landfill Cover and Cap/LUCs	Alternative includes monitoring as in Alternative 2, and also includes containment of landfill by a cap over the most contaminated portion of the landfill and a cover over the remaining area.	MNA shown to be occurring at site for chlorinated ethenes; MNA estimated to take 50 years at the site to meet PRGs; metals in groundwater addressed through LUCs which would limit contact.
4	In Situ Chemical Oxidation of Groundwater/Landfill Cover and Cap/LUCs	Alternative includes a cap over the most contaminated portion of the landfill and a cover over the remaining area; groundwater remediation includes pilot test of chemical oxidation over approximately 5,000 square feet and full remediation over the approximately 2-acre area in the southern portion of the landfill.	Chemical oxidation is considered an instantaneous remedial technology; metals in groundwater addressed through LUCs which would limit contact.

Notes:
MNA - monitored natural attenuation
LUC - land use controls
VOCs - volatile organic compounds
PRG - preliminary remedation goal
ARAR - Applicable or Relevant and Appropriate Requirements

SECTION 4

DETAILED EVALUATION OF SCREENED REMEDIAL ALTERNATIVES

4.1 OVERVIEW

4.1.1 The four alternatives are analyzed in this section using the nine evaluation criteria outlined in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR Section 300.430, the USEPA *Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA* (USEPA, 1988) as provided in Table 4.1, and the NYSDEC TAGM 4030 *Selection of Remedial Actions at Inactive Hazardous Waste Sites* (NYSDEC, 1990). The criteria include:

<u>Threshold Criteria</u>

- Overall protection of human health and the environment
- Compliance with ARARs

<u>Primary Balancing Criteria</u>

- Long-term effectiveness and permanence
- Reduction of toxicity, mobility, or volume through treatment
- Short-term effectiveness
- Implementability
- Cost

<u>Modifying Criteria</u>

- State Acceptance
- Community Acceptance

4.1.2 The criterion of cost is assessed by estimating relative costs for the alternatives. The modifying criteria of state acceptance and community acceptance are not addressed in this analysis. Instead, they will be evaluated based on state and public review periods following submission of this FFS and the ensuing issuance of the ROD. For an alternative to be eligible for selection, it must meet the threshold criteria. If these criteria are met, the primary balancing criteria are evaluated to provide the best balance of trade-offs among alternatives.

4.1.1 Overall Protection of Human Health and the Environment

The overall protection of human health and the environment criterion entails determining whether risks from impacts at the site to human health and the environment are eliminated, reduced, or controlled. This assessment is also based on other evaluation criteria, especially long-term effectiveness and permanence, short-term effectiveness, and compliance with standards, criteria, and guidelines.

4.1.2 Compliance with ARARs

This evaluation criterion is used to determine whether an alternative complies with the Federal and state ARARs/TBCs identified in Section 2. To be eligible for selection, a remedial action alternative must comply with ARARs, unless specifically waived.

4.1.3 Long-term Effectiveness and Permanence

The long-term effectiveness and permanence of a remedial action depends on the following aspects:

- Permanence of the remedial alternative
- Magnitude of the risk remaining after remediation
- Adequacy and reliability of controls, if any, used to manage treatment residuals or untreated wastes that remain at the site following remediation

4.1.4 Reduction of Toxicity, Mobility, or Volume Through Treatment

This criterion measures the effectiveness of treatment technologies in eliminating any significant threats at a site via destruction of toxic contaminants, reduction of their total mass, or irreversible reduction of the total volume of contaminated media. The evaluation of the reduction of toxicity, mobility, or volume involves consideration of the following criteria:

- Type of treatment or recycling process and type of materials
- Amount of hazardous materials that would be destroyed or treated, including how principal threats would be addressed
- Degree of expected reduction in toxicity, mobility, or volume estimated wherever reasonably possible as a percent reduction
- Degree to which treatment would be irreversible
- Type and quantity of residuals that would be present following treatment
- Fulfillment of the preference for treatment as a principal element

4.1.5 Short-term Effectiveness

Short-term effectiveness encompasses the effects of an alternative on human health and the environment during the construction and implementation phase until RAOs are met. The following elements are usually considered:

- Protection of the community during remedial construction activities
- Environmental impacts to site workers and remediation workers during remedial construction activities

- Time until remedial response objectives would be achieved

4.1.6 Implementability

Implementability considers the technical and administrative feasibility of implementing an alternative and the availability of the services and materials required during its implementation. The following issues are usually examined:

- Implementation efforts during construction and operation
- Reliability of technology
- Monitoring considerations
- Ease of undertaking additional remedial actions
- Activities needed to coordinate with other offices and agencies
- Availability of adequate off-site treatment, storage capacity, and disposal services
- Availability of necessary equipment, specialists, skilled operators, and provisions to ensure any necessary additional resources

4.1.7 Cost

The cost evaluation assesses estimated relative capital costs and annual operation and maintenance (O&M) costs. Capital costs consist of present and future, and direct and indirect expenses. Direct capital costs include engineering, labor, equipment, and material expenses. Indirect capital costs include expenditures for engineering, licenses, permits, contingency allowances, and other services not part of the actual installation costs. O&M costs are the annual costs incurred after the remedial actions are constructed and may include, but are not limited to, operating labor, energy, chemicals, and sampling and analysis. O&M costs are included for 30 years following completion of the remedial action. The approximate accuracy of the costs is minus 30 percent to plus 50 percent, as suggested in USEPA guidance (1988). The annual discount rate assumed for all net present value calculations is 7 percent.

4.1.8 Presentation of Alternatives

The alternatives presented below incorporate a range of groundwater treatment and soil containment options. A combination of components from these alternatives can be used as the recommended alternative.

4.2 EVALUATION OF ALTERNATIVE 1 – NO ACTION

4.2.1 Description

Alternative 1 consists of the following components:

- Allow the area to remain in its present condition.
- Do not implement any form of LUC to the affected area(s)

4.2.2 Overall Protection of Human Health and the Environment

This alternative would not provide any provisions for the overall protection of human health and the environment. The HHRA found no unacceptable risk associated with soils; however, Part 375 industrial land use soil cleanup objectives for arsenic and PAHs were exceeded at AOC 1. Unacceptable residential groundwater risks are posed at AOC 1 by arsenic and VOCs. Unacceptable residential risk is posed by metals, VOCs and SVOCs in the pond water at AOC 1 (associated with using the pond as a drinking water source). The sediments at the site do not pose an unacceptable risk. The qualitative ecological risk assessment found the site support wildlife typical for the area, and for the commercial/industrial land use that the site has retained for over 60 years.

4.2.3 Compliance with ARARs

Groundwater natural attenuation would occur under the No Action Alternative; however, no monitoring would occur to verify the levels. Groundwater ARARs and TBCs would not be met. The surface water ARAR for BEHP has been met with the 2010 sampling event. The soil ARAR would not met, as soil concentrations that exceed the Part 375 industrial cleanup objectives would remain onsite.

4.2.4 Long-term Effectiveness and Permanence

A No Action alternative is not a permanent remedy. Some reduction in contaminant concentrations can be expected over the long term due to natural attenuation.

4.2.5 Reduction of Toxicity, Mobility, or Volume Through Treatment

A No Action alternative would not reduce the toxicity, mobility, or volume of the impacted material beyond what naturally occurs in the groundwater plume.

4.2.6 Short-term Effectiveness

A No Action alternative would not provide any short-term effects in the reduction of the toxicity, mobility, or volume of the impacted material. Any reduction in contaminant concentrations due to natural attenuation would happen over the long term.

4.2.7 Implementability

Alternative 1 would be easily implemented.

4.2.8 Cost

The estimated cost for the implementation of Alternative 1 is $0.

4.3 EVALUATION OF ALTERNATIVE 2 – GROUNDWATER MNA/LUCS

4.3.1 Description

This alternative consists of the following components:

- Groundwater MNA

- Perform annual groundwater sampling to evaluate and monitor attenuation of contaminants. Analyze samples for VOCs, metals, and natural attenuation parameters.
- Provide annual report to NYSDEC including sample locations, analysis, results, comparison to baseline and previous sampling events, and projected time for all contaminants to reach remedial goals. After the first several years of sampling, it is anticipated that sampling frequency would decrease to once every five years.
- Continue monitoring until chlorinated ethenes (TCE, DCE, VC) remedial objectives are met.

- Implement LUCs
  - Granting of an Environmental Easement to the State of New York by the property owner, with periodic certification that terms of easement are effectively implemented.
  - Vapor intrusion risks should be considered during planning for any new (future) construction of buildings in the vicinity of AOC 1.
  - Restrict site to industrial use by applying an environmental easement which would include prohibiting use of site groundwater for drinking purposes, which eliminates the groundwater exposure pathway. A review will be conducted every five years to ensure that the use controls remain in place and are effective.
  - Prohibit construction of buildings on the landfilled areas.
  - Post “no trespassing” signs to minimize/prevent unauthorized access to the site.
  - Maintain LUCs indefinitely, or for those specific groundwater use restrictions, until such time that groundwater sample analyses demonstrate that those restrictions are no longer necessary.

4.3.2 Overall Protection of Human Health and the Environment

This alternative would provide some additional protection of human health by mitigating the potential for exposure to groundwater and groundwater vapors. The LUCs would include a prohibition on using site groundwater for drinking purposes, eliminating the groundwater exposure pathway. A vapor intrusion barrier would prevent incidental inhalation of VOCs from groundwater in any building that may be built in the future. Ecological risk at the site is acceptable and would not be affected by this alternative. This alternative does not apply the Containment Presumptive Remedy at the site.

4.3.3 Compliance with ARARs

This alternative would include a prohibition on using site groundwater for drinking purposes, eliminating the groundwater exposure pathway. Therefore, the groundwater standards ARAR will be satisfied. The surface water ARAR for BEHP has been met with the 2010 sampling event. The soil ARAR would not met, as soil concentrations that exceed the Part 375 industrial cleanup objectives would remain onsite, and no action will be taken to eliminate the soil direct contact pathway.

4.3.4 Long-term Effectiveness and Permanence

LUCs are not a permanent remedy. Groundwater MNA would gradually provide a long-term groundwater solution for chlorinated ethenes. This alternative would have no long-term effectiveness on metals (lead and arsenic) in the groundwater.

4.3.5 Reduction of Toxicity, Mobility, or Volume Through Treatment

MNA would reduce the toxicity of the contamination in the groundwater.

4.3.6 Short-term Effectiveness

4.3.6.1 LUCs could be implemented within a time period of a few weeks to a few months. MNA could begin immediately. No contaminant concentration decrease beyond natural attenuation would occur at the site. Impacts to site workers and remediation workers at the site during implementation of Alternative 2 would be expected to be minimal. When workers collect groundwater samples to monitor the contaminant concentrations in the groundwater, the use of appropriate personal protective equipment would minimize direct contact with groundwater.

4.3.6.2 Enhanced MNA using an additive such as emulsified vegetable oil could increase the rate of reductive dechlorination and therefore reduce remediation time, assuming correct placement of injection points and the appropriate amount of injected material. Due to the limited number of sampling events available to establish concentrations trends, the remediation time cannot be estimated and is indeterminate. Enhancement should be considered in the design phase if groundwater MNA is chosen as the preferred groundwater technology at the site. Note that there will be a potential to mobilize arsenic (at least temporarily) if electron donor injection is performed to establish strongly reducing conditions.

4.3.7 Implementability

Alternative 2 involves MNA and implementation of LUCs. These actions are easily implemented, but will require that the property owner consent to the application of the Environmental Easement to the State of New York. The implementability of this alternative would depend on the willingness of the property owner to comply. The current property owner has expressed their willingness to accept an environmental easement in a letter to USACE dated September 10, 2009.

4.3.8 Cost

The estimated cost for the implementation of Alternative 2 is approximately $310,000 (see Table 4.2), and assumes:

- Annual discount rate of 7 percent
- LUC operations and maintenance occurs annually for 30 years
- LUCs do not include installation of vapor control systems. Installation costs are dependent on the size of the building(s) and will be the responsibility of the property owner or building owner.

- Groundwater monitoring occurs annually until Year 5, then occurs every five years (Years 10, 15, 20, 25, 30, 35, 40, 45, and 50).

4.4 EVALUATION OF ALTERNATIVE 3 – GROUNDWATER MNA/LANDFILL CAP/COVER/LUCS

4.4.1 Description

4.4.1.1 Alternative 3 consists of the components included in Alternative 2 (MNA and LUCs) as well as a landfill cap and cover at AOC 1, satisfying the application of the Containment Presumptive Remedy at the site:

- Landfill Cap

  In this alternative, a impermeable landfill cap would be installed for the approximately 2.5-acre area covering the groundwater plume (see Figure 3.6). The landfill cap is more protective than a soil cover and would minimize water infiltration through the most contaminated soil/fill area into the groundwater plume. The landfill would meet State and Federal landfill closure/post-closure requirements (40 CFR 264.310 and 6 NYCRR 373-3.14), which include cap specifications. Note that areas are denoted for evaluation and estimating purposes and could be changed in the field according to actual conditions and landfill boundaries:

  - Place 6-inch sub-base over approximately 110,250 square feet (approximately 2,000 cubic yards).
  - Install geocomposite gas vent layer over the sub-base and a 40-mil LLDPE textured geomembrane over the gas vent layer (approximately 110,250 square feet each).
  - Install geocomposite drainage layer over the geomembrane.
  - Cover drainage layer with a 2-foot barrier protection layer (approximately 8,200 cubic yards).
  - Cover barrier layer with 6 inches of topsoil. Grade for restoration and proper drainage, and seed with appropriate vegetation for erosion control.
  - Periodic inspection and operation-maintenance over a 30-year period.

- Soil Cover

  The permeable soil cover is estimated for the approximately 8-acre landfill area in Figure 3.6 that is not affecting groundwater conditions. The soil cover would be provided to improve the current soil cover at the landfill. Note that areas are denoted for evaluation and estimating purposes and may be changed in the field according to actual conditions and landfill boundaries:

  - Cover approximately 355,700 square feet as shown in Figure 3.6 with 1 foot of soil (approximately 13,200 cubic yards). Cover the soil layer with a 6-inch layer of topsoil (approximately 6,600 cubic yards).
  - Grade for restoration and proper drainage and seed with appropriate vegetation for erosion control.

  - o Periodic inspection and operation-maintenance over a 30-year period.

- Groundwater MNA (see Section 4.3.1)
- Implement LUCs (see Section 4.3.1). Note that the building restriction applies to the capped/covered areas under this alternative.

4.4.2 Overall Protection of Human Health and the Environment

This alternative would provide some additional protection of human health by mitigating the potential for exposure to soil, groundwater and groundwater vapors, and surface water. The potential for physical contact with the landfill material would be reduced by LUCs, by installing a landfill cap over the most impacted soils in the southern portion of the landfill, and by improving the soil cover over the remainder of the landfill. The landfill cover and cap meets requirements of the Containment Presumptive Remedy which is being applied at the site. Infiltration into the groundwater plume would be greatly reduced by the landfill cap. Any soil staging and other earthwork would be conducted in a manner that would avoid any impacts to wetlands at the site. The LUCs would include a prohibition on using site groundwater for drinking purposes, eliminating the groundwater exposure pathway. A vapor intrusion barrier would prevent incidental inhalation of VOCs from groundwater in any building that may be built in the future, and no buildings would be constructed on the landfill areas. Ecological risk at the site is acceptable and would not be affected by this alternative.

4.4.3 Compliance with ARARs

This alternative would include a prohibition on using site groundwater for drinking purposes, eliminating the groundwater exposure pathway. Therefore, the groundwater standards ARAR will be satisfied. The surface water ARAR for BEHP has been met with the 2010 sampling event. Construction of a landfill cap over the southern portion of the landfill would minimize water infiltration through the contaminated material and into the groundwater plume. The landfill cap and cover will eliminate the soil direct contact exposure pathway. Therefore, soil ARARs would be satisfied.

4.4.4 Long-term Effectiveness and Permanence

4.4.4.1 Although engineered covers can typically have a design life of more than 50 years assuming good maintenance practices, LUCs would need to be initiated to ensure future activities on the site do not disrupt the cover or the underlying material. LUCs are not a permanent remedy.

4.4.4.2 Groundwater MNA would gradually provide a long-term groundwater solution for chlorinated ethenes. Enhanced MNA would decrease the remediation time assuming correct placement of injection points and the appropriate amount of injected material. MNA would not reduce the lead and arsenic concentrations in the groundwater.

4.4.5 Reduction of Toxicity, Mobility, or Volume Through Treatment

Groundwater MNA would reduce the toxicity of the contamination in the groundwater. Capping the area above the groundwater plume would decrease water infiltration through the most contaminated portion of the landfill.

4.4.6 Short-term Effectiveness

4.4.6.1 Assuming trucks capable of hauling 20 cubic yards of material are used to bring soil and topsoil on-site, containment of the impacted material could be conducted within a time period of approximately four months. LUCs could be implemented within a time period of a few weeks to a few months. MNA could begin immediately. Enhanced MNA using an additive such as emulsified vegetable oil could increase the rate of reductive dechlorination, and should be considered in the design phase if Alternative 3 is chosen as the preferred alternative at the site.

4.4.6.2 Short-term risks to site workers include working near heavy machinery, dust inhalation, and potential contact with contaminated groundwater during monitoring events. Risks could be minimized with the use of controls, such as personal protective equipment and dust suppression (e.g., watering of soils). All site risks would be detailed in a site Health and Safety Plan; compliance with the Health and Safety Plan would be required by all site workers.

4.4.7 Implementability

Alternative 3 involves containment of soils using a landfill cap, soil cover, groundwater MNA, and LUCs. These technologies are commonly used at remediation sites and would be easily implemented, but will require property owner consent on the application of the Environmental Easement to the State of New York. The implementability of this alternative would depend on the willingness of the property owner to comply. The current property owner has expressed their willingness to accept an environmental easement in a letter to USACE dated September 10, 2009.

4.4.8 Cost

The estimated cost for the implementation of Alternative 3 is approximately $2,414,000 (see Table 4.3), and assumes:

- Annual discount rate of 7 percent
- LUC operations and maintenance occurs annually for 30 years
- LUCs do not include installation of vapor control systems. Installation costs are dependent on the size of the building(s) and would be the responsibility of the property owner or building owner.
- One foot of clean material will be backfilled for the 8-acre soil cover
- Groundwater monitoring occurs annually until Year 5, then occurs every five years (Years 10, 15, 20, 25, 30, 35, 40, 45, and 50)

4.5 EVALUATION OF ALTERNATIVE 4 – CHEMICAL OXIDATION OF GROUNDWATER/LANDFILL CAP/COVER/LUCS

4.5.1 Description

4.5.1.1 Alternative 4 consists of landfill cap/cover, chemical oxidation of groundwater, and LUCs:

- Landfill cap and soil cover

  In this alternative, an impermeable landfill cap would be installed over the approximately 2.5-acre area where the groundwater plume exists. The landfill cap would minimize water infiltration through the most contaminated soil/fill area. The soil cover would be constructed over the remaining 8 acres of the landfill at AOC 1. The landfill would meet State and Federal landfill closure/post-closure requirements (40 CFR 264.310 and 6 NYCRR 373-3.14), which include cap specifications. See Section 4.4.1 for volumes and areas.
- Chemical Oxidation Treatment of Groundwater
  - Conduct pilot demonstration of an area of approximately 5,000 square feet (0.1 acres) to ensure chemical oxidation can be applied at the landfill (inherent heterogeneity of landfill may preclude use of this technology) and refine treatment parameters for full-scale remediation.
    - Inject reagents into subsurface. Injections would be accomplished by means of direct-push techniques to the fill/glacial till interface (approximately 10 feet).
    - Monitor test by collecting groundwater samples from existing monitoring wells located within the demonstration area. It is anticipated that samples would be collected from three wells and analyzed twice during the demonstration: prior to injection as a baseline, and after the first injection event. Groundwater samples would be analyzed for VOCs.
  - Conduct full-scale program designed using data from the pilot demonstration.
    - Inject reagents into subsurface at additional locations. This number would be determined based on the pilot demonstration. Injections would be accomplished by means of direct-push techniques to the fill/glacial till interface.
    - Collect groundwater samples from each existing monitoring well within the injection area and analyze for VOCs.
  - Based on contaminant levels, it is anticipated that two rounds of injection would be needed at the landfill.
- LUCs (see Section 4.3.1). Note that the building restriction applies to the capped/covered areas under this alternative.

4.5.2 Overall Protection of Human Health and the Environment

This alternative would provide more overall protection of human health and the environment than Alternatives 1 through 3. There are unknown and uncharacterized wastes in the landfill, and soils are present within the landfill limits that exceed the Part 375 soil cleanup objectives for industrial land use. The potential for physical contact with the landfill material would be reduced by LUCs, by installing a landfill cap over the most impacted soils in the southern portion of the landfill, and by re-establishing a soil cover over the remainder of the landfill. The landfill cover and cap meets requirements of the Containment Presumptive Remedy which is being applied at the site. Water infiltration into the most contaminated materials would be greatly reduced by the landfill cap. This alternative would include a prohibition on using site groundwater for drinking purposes, eliminating the groundwater exposure pathway. Any soil staging and other earthwork would be conducted in a manner that would avoid any impacts to wetlands at the site. A vapor intrusion barrier, as needed, would prevent incidental inhalation of VOCs from groundwater in any building that may be built in the future, and no buildings would be constructed on the landfill areas. Ecological risk is acceptable and would not be affected by this alternative.

4.5.3 Compliance with ARARs

This alternative would include a prohibition on using site groundwater for drinking purposes, eliminating the groundwater exposure pathway. Therefore, the groundwater standards ARAR will be satisfied. The surface water ARAR for BEHP has been met with the 2010 sampling event. The landfill cap and cover will eliminate the soil direct contact exposure pathway. Therefore, soil ARARs would be satisfied.

4.5.4 Long-term Effectiveness and Permanence

4.5.4.1 Although engineered covers can typically have a design life of more than 50 years assuming good maintenance practices, LUCs would be needed to ensure future activities on the site do not disrupt the cover or the underlying material. LUCs are not a permanent remedy.

4.5.4.2 Chemical oxidation - provided the pilot demonstration indicates that the landfill conditions are amenable to this technology - would provide a long-term solution for chlorinated ethenes in the groundwater.

4.5.5 Reduction of Toxicity, Mobility, or Volume Through Treatment

Containment of surface soil would not reduce the toxicity, or the volume of the impacted materials. Containment would reduce the mobility of the contamination; however, this would not be achieved via treatment. Chemical oxidation would reduce the toxicity of the contamination in the groundwater.

4.5.6 Short-term Effectiveness

4.5.6.1 Assuming 20-cubic yard trucks are used to bring soil and topsoil on-site, containment of the impacted material could be conducted within a time period of approximately four months. Chemical oxidation could be conducted within a time period of approximately one month, including a pilot demonstration, analysis of results, and full-scale chemical oxidation injection. Remediation time for chemical oxidation is considered instantaneous. LUCs could be implemented within a time period of a few weeks to a few months.

4.5.6.2 Short-term risks to site workers include working near heavy machinery, dust inhalation, and handling of chemical oxidants. Risks could be minimized with the use of controls, such as personal protective equipment, dust suppression (e.g., watering of soils), and proper handling of the oxidants. All site risks would be detailed in a site Health and Safety Plan; compliance with the Health and Safety Plan would be required by all site workers.

4.5.7 Implementability

4.5.7.1 Containment of soils is commonly used and would be easily implemented.

4.5.7.2 Chemical oxidation would be easily implemented, assuming the pilot demonstration indicates the site conditions are amenable to this technology.

4.5.7.3 Alternative 4 involves the application of a LUC to the site, and would require the property owner's consent for the granting of an environmental easement to the State of New York. The implementability of this alternative would depend on the willingness of the property owner to comply. The current property owner has expressed their willingness to accept an environmental easement in a letter to USACE dated September 10, 2009.

4.5.8 Cost

The estimated cost for the implementation of Alternative 4 is $2,673,000 (see Table 4.4), and assumes:

- Annual discount rate of 7 percent
- LUCs operations and maintenance occurs annually for 30 years
- LUCs do not include installation of the vapor control system. Installation costs for the vapor control system are dependent on the size of the building(s) and would be the responsibility of the property owner or building owner.
- One foot of clean material will be backfilled for the 8-acre soil cover
- Only one injection will be required for *in situ* chemical oxidation of groundwater

4.6 COMPARISON OF ALTERNATIVES

Table 4.5 provides a summary of Alternatives 1 through 4.

4.6.1 Overall Protection of Human Health and the Environment

4.6.1.1 All alternatives (except for the No Action alternative) would provide some degree of protection of human health and the environment. Potential contact with impacted soils and waste materials under Alternative 2 would be reduced somewhat by implementing LUCs and reduced under Alternatives 3 and 4 by installing a landfill cap/soil cover. Alternatives 3 and 4 satisfy the Containment Presumptive Remedy being applied at the site.

4.6.1.2 There is no known exposure pathway for groundwater at the site to impact human receptors. However, assuming a future exposure pathway exists, potential impacts on human health and the environment via site groundwater would remain under Alternatives 2 and 3 until MNA reduces the chlorinated ethane concentrations to below NYSDEC Class GA groundwater guidance values. Enhanced MNA could significantly decrease remediation time and should be considered during the design process if this is the chosen groundwater technology. Infiltration into the groundwater plume would be reduced in Alternative 3 by constructing a landfill cap over the southern portion of the landfill. Alternative 4 would remediate organic constituents in the groundwater by using chemical oxidation, assuming the pilot demonstration shows that the site is amenable to this technology. Chemical oxidation is considered instantaneous. Metals concentrations in groundwater would not be significantly reduced by any of the groundwater treatment alternatives; however, human health risks due to metals in the groundwater are minimal. The LUCs in Alternatives 2 through 4 would include a prohibition on using site groundwater for drinking purposes, eliminating the groundwater exposure pathway.

4.6.1.3 Alternatives 2 through 4 include LUCs for future use, including requiring a vapor intrusion barrier for any building that may be built as well as prohibiting any building be constructed on the landfill area(s).

4.6.2 Compliance with ARARs

4.6.2.1 Alternatives 2 and 3 would rely on MNA to gradually reduce chlorinated ethenes in the groundwater; Alternative 3 would minimize infiltration of precipitation through the contaminated soil/waste material into the groundwater plume. Alternative 4 would use chemical oxidation to remove chlorinated ethenes from the groundwater.

4.6.2.2 The surface water ARAR for BEHP has been met with the 2010 sampling event.

4.6.2.3 ARARs for groundwater would not be met under Alternative 1. The LUCs in Alternatives 2 though 4 include a prohibition on groundwater use, which eliminates the groundwater exposure pathway. Therefore, the groundwater standards ARAR will be satisfied for Alternatives 2 through 4.

4.6.3 Long-term Effectiveness and Permanence

4.6.3.1 Although engineered covers can typically have a design life of more than 50 years assuming good maintenance practices, LUCs would need to be implemented to ensure future activities on the site do not disrupt the cap or underlying material for Alternatives 3 through 4. LUCs are not a permanent remedy. Alternatives 3 and 4 satisfy the Containment Presumptive Remedy being applied at the site.

4.6.3.2 Groundwater MNA (Alternatives 2 and 3) would eventually provide long-term effectiveness for chlorinated ethenes. Chemical oxidation (Alternative 4) would provide long-term effectiveness for chlorinated ethenes, assuming the pilot demonstration indicates that the site is amenable to treatment. Chemical oxidation is considered instantaneous remediation. Metals concentrations in groundwater would not be significantly reduced by any of the groundwater treatment alternatives; however, human health risk due to metals is minimal.

4.6.4 Reduction of Toxicity, Mobility, or Volume Through Treatment

Alternatives involving groundwater MNA (Alternatives 2 and 3) would reduce the toxicity due to VOCs in the groundwater, although not through treatment. Groundwater chemical oxidation (Alternative 4) would reduce organic constituents in the groundwater. Metals in groundwater would not be significantly affected by any of the groundwater treatment alternatives, although metals have been shown to pose only a minimal potential human health risk at the site.

4.6.5 Short-term Effectiveness

4.6.5.1 MNA of the groundwater (Alternatives 2 and 3) could begin immediately. Enhanced MNA could significantly reduce remediation time and should be considered in the design if an alternative with MNA is selected for the site. Chemical oxidation (Alternatives 4) could be conducted within approximately one month and is considered instantaneous remediation.

4.6.5.2 Containment of impacted soil and waste material could be conducted within a time period of approximately four months (Alternatives 3 and 4).

4.6.5.3 All alternatives except no action would include LUCs, which could be implemented within a period of a few weeks to a few months.

4.6.5.4 Short-term risks to site workers associated with Alternative 2 would be minimal and are associated with groundwater sampling activities. Short-term risks to site workers associated with Alternatives 3 and 4 include working near heavy machinery, dust inhalation, and potential contact with groundwater during sampling activities. In addition, Alternative 4 includes risks associated with handling of chemical oxidation treatment materials.

4.6.5.5 All site risks and mitigation measures associated with the remedial action would be detailed in a site Health and Safety Plan; compliance with the Health and Safety Plan would be required by all site workers.

4.6.6 Implementability

Alternative 4 requires a pilot demonstration to ensure the material is amenable to chemical oxidation.

4.6.7 Cost

The estimated present net worth for the alternatives are as follows (see Appendix C):

Alternative 1 (No Action):	$0
Alternative 2:	$0.31 million
Alternative 3:	$2.4 million
Alternative 4:	$2.67 million

TABLE 4.1

NINE CRITERIA FOR REMEDIAL ALTERNATIVES EVALUATON

THRESHOLD CRITERIA

1 Overall Protection of Human Health and the Environment

- How the Alternative Provides Human Health and Environmental Protection

2 Compliance with ARARs

- Compliance with Chemical-Specific ARARs
- Compliance with Location-Specific ARARs
- Compliance with Action-Specific ARARs
- Compliance with Other Criteria, Advisories, and guidance

PRIMARY BALANCING CRITERIA

3 Long-Term Effectiveness and Permanence

- Magnitude of Residual Risk
- Adequacy and Reliability of Controls

4 Reduction of Toxicity, Mobility, or Volume Through Treatment

- Treatment Process Used and Materials Treated
- Amount of Hazardous Materials Destroyed or Treated
- Degree of Expected Reductions n Toxicity, Mobility, or Volume
- Degree to Which Treatment is Irreversible
- Type and Quantity of Residuals Remaining After Treatment

5 Short-Term Effectiveness

- Protection of Community During Remedial Actions
- Protection of Workers During Remedial Actions
- Environmental Impacts
- Time Until Remedial Action Objectives are Achieved

6 Implementability

- Ability to Construct and Operate the Technology
- Reliability of the Technology
- Ease of Undertaking Additional Remedial Actions, if Necessary
- Ability to Monitor Effectiveness of Remedy
- Ability to Obtain Approvals from Other Agencies
- Coordination with Other Agencies
- Ability to Off-Site Treatment, Storage, and Disposal Services and Capacity
- Availability of Necessary Equipment and specialists
- Availability of Prospective Technologies

7 Cost

- Estimated Capital Costs
- Estimated Annual Operation and Maintenance Costs
- Estimated Present Worth Costs

MODIFYING CRITERIA[1]

8 State Acceptance

- Features of the Alternatives the State supports
- Features of the Alternative About Which the State has Reservations
- Elements of the Alternative the state Strongly Opposes

9 Community Acceptance

- Features of the Alternative the community Supports
- Features of the Alternative About Which the community has Reservations
- Elements of the Alternative the community Strongly Opposes

[1] These criteria are assessed following comment on the RI Report, FS, and the Proposed Plan, and are fully addressed in the ROD.

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PB98-963241, July 1999

Table 4.2
Cost Estimate for Alternative 2 AOC 1 and 7

Annual Operation & Maintenance Costs					
Item	**Cost Item/Description**	**Unit**	**Quantity**	**Unit Cost**	**Total Cost**
LUCs (Years 1 through 30)					
1	Project Management and Administration[1]	LS	1	$4,000	$4,000
2	LUCs[1,2]	LS	1	$9,000	$9,000
	Subtotal				$13,000
3	Contingency (% of the total)	15%			$1,950
	Subtotal of ICs				**$14,950**
Monitored Natural Attenuation (Years 1 through 5, 10, 15, 20, 25, 30, 35, 40, 45, and 50)					
4	Project Management, Administration, and Reporting[1]	LS	1	$6,000	$6,000
5	Monitored Natural Attenuation[1]	LS	1	$10,000	$10,000
	Subtotal				$16,000
6	Contingency (% of the total)	15%			$2,400
	Subtotal of MNA				**$18,400**
	Total O&M Cost				**$719,100**
	Total Costs				**$719,100**
Net Present Value[3] for Alternative 2 (Assumes annual discount rate of 7%)					**$310,000**

Notes:
1) Parsons' estimate based on previous projects
2) LUCs do not include installation of a vapor intrusion system. Installation costs are dependent on the size of the proposed building(s) and would be paid by the building owner.
3) NPV rounded to 2 significant digits.

Table 4.3
Cost Estimate for Alternative 3 for AOC 1 and 7

Capital Costs (Year 1)					
Item	**Cost Item/Description**	**Unit**	**Quantity**	**Unit Cost**	**Total Cost**
1.0	***Mobilization/Site Preparation***				
1.1	Plans/Methods Statement/Permits[(1)]	LS	1	$55,000	$55,000
1.2	Office Trailers/Furniture/Equipment/Utilities	LS	1	$10,000	$10,000
1.3	Mobilize Equipment and Workers	LS	1	$10,000	$10,000
1.4	Temporary Fencing/Erosion Control/Clearing and Grubbing	LS	1	$25,000	$25,000
1.5	Surveying	LS	1	$10,000	$10,000
1.6	Health and Safety Equipment/Supplies (Assume Level D)	LS	1	$30,000	$30,000
1.7	Decontamination Pad/Site Haul Roads/Turnarounds	LS	1	$30,000	$30,000
	Task Subtotal				**$170,000**
2.0	***Placement of Cover Material (over 8-acre area)***				
2.1	Importing & Placement of cover fill material[(2)]	CY	13,174	$15	$197,610
2.2	Topsoil (6")	CY	6,587	$25	$164,675
2.3	Grading & Seeding	acre	8	$2,500	$20,000
	Task Subtotal				**$382,285**
3.0	***Impermeable Landfill Cap (2.5-acre area)[(3)]***				
3.1	Predesign investigation	LS	1	$50,000	$50,000
3.2	Landfill Cap Design	LS	1	$90,000	$90,000
3.3	Subbase (6")	CY	2,042	$3	$5,616
3.4	Geocomposite Gas Vent Layer	SY	12,250	$6.5	$79,625
3.5	40-mil LLDPE Textured Geomembrane	SY	12,250	$6.5	$79,625
3.6	Geocomposite Drainage Later	SY	12,250	$7	$85,750
3.7	Barrier Protection Layer (24")	CY	8,167	$18	$147,006
3.8	Topsoil (6")	CY	2,042	$25	$51,050
3.9	Grading and Seeding	acre	2.5	$2,500	$6,250
3.10	Erosion Control Fabric	SY	12,250	$1.5	$18,375
	Task Subtotal				**$613,297**

Table 4.3, Continued

4.0	***Demobilization***				
4.1	Removal of Temporary Fencing, Erosion Controls, Utilities, Trailers	LS	1	$7,000	$7,000
4.2	Demobilization of Workers, Equipment, Extra Materials	LS	1	$5,000	$5,000
	Task Subtotal				**$12,000**
	Subtotal				$1,177,582
	Engineering/Oversight (10%)				$117,758
	Contingency (15%)				$176,637
	Subtotal				**$1,471,977**
	Total Capital Costs				**$1,472,000**

Annual Operation & Maintenance Costs					
Item	**Cost Item/Description**	**Unit**	**Quantity**	**Unit Cost**	**Total Cost**
Cap/Cover Maintenance and Monitoring (Years 1 through 30) (4)					
1	Project Management, Administration, and Reporting(1)	LS	1	$6,000	$6,000
2	Cap/cover Maintenance and Monitoring	Acre	10.5	$3,000	$31,500
	Subtotal				$37,500
3	Contingency (% of the total)	15%			$5,625
4	Technical Support/Troubleshooting (% of total and contingency)	10%			$4,313
	Subtotal of Cap/Cover Costs				**$47,438**
LUCs (Years 1 through 30) (4,5)					
5	Project Management and Administration(1)	LS	1	$4,000	$4,000
6	LUCs(1,2)	LS	1	$9,000	$9,000
	Subtotal				$13,000
7	Contingency (% of the total)	15%			$1,950
	Subtotal of ICs				**$14,950**
Monitored Natural Attenuation (Years 1 through 5, 10, 15, 20, 25, 30, 35, 40, 45, and 50) (4)					
8	Project Management, Administration, and Reporting(1)	LS	1	$6,000	$6,000
9	Monitored Natural Attenuation(1)	LS	1	$10,000	$10,000
	Subtotal				$16,000
10	Contingency (% of the total)	15%			$2,400
	Subtotal of MNA				**$18,400**
	Total O&M Cost				**$2,129,225**
	Total Cost				**$3,601,225**
Net Present Value for Alternative 3(6) (Assumes annual discount rate of 7%)					**$2,414,000**

Table 4.3, Continued

Notes:

1) Plans include design plans for cover and cap, Health and Safety plan, Quality Assurance/Quality Control Plans, and Sampling and Analysis Plans
2) Assumes 1 foot of clean material will be backfilled
3) Impermeable cap estimates based on several design cost estimates from a previous proposal received by Parsons
4) Parsons' estimate based on previous projects
5) LUCs do not include installation of a vapor intrusion system. Installation costs are dependent on the size of the proposed building(s) and would be paid by the building owner
6) NPV rounded to two significant digits.

Table 4.4
Cost Estimate for Alternative 4 AOC 1 and 7

Capital Costs (Year 1)					
Item	**Cost Item/Description**	**Unit**	**Quantity**	**Unit Cost**	**Total Cost**
1.0	***Mobilization/Site Preparation***[1]				
1.1	Plans/Methods Statement/Permits	LS	1	$55,000	$55,000
1.2	Office Trailers/Furniture/Equipment/Utilities	LS	1	$10,000	$10,000
1.3	Mobilize Equipment and Workers	LS	1	$10,000	$10,000
1.4	Temporary Fencing/Erosion Control/Clearing and Grubbing	LS	1	$25,000	$25,000
1.5	Surveying	LS	1	$10,000	$10,000
1.6	Health and Safety Equipment/Supplies (Assume Level D)	LS	1	$30,000	$30,000
1.7	Decontamination Pad/Site Haul Roads/Turnarounds	LS	1	$30,000	$30,000
	Task Subtotal				**$170,000**
2.0	***Placement of Cover Material (over 8-acre area)***				
2.1	Importing & Placement of cover fill material[(2)]	CY	13,174	$15	$197,610
2.2	Topsoil (6")	CY	6,587	$25	$164,675
2.3	Grading & Seeding	acre	8	$2,500	$20,000
	Task Subtotal				**$382,285**
3.0	***Impermeable Landfill Cap (2.5-acre area)*** [(3)]				
3.1	Predesign investigation	LS	1	$50,000	$50,000
3.2	Landfill Cap Design	LS	1	$90,000	$90,000
3.3	Subbase (6")	CY	2,042	$3	$5,616
3.4	Geocomposite Gas Vent Layer	SY	12,250	$6.5	$79,625
3.5	40-mil LLDPE Textured Geomembrane	SY	12,250	$6.5	$79,625
3.6	Geocomposite Drainage Later	SY	12,250	$7	$85,750
3.7	Barrier Protection Layer (24")	CY	8,167	$18	$147,006
3.8	Topsoil (6")	CY	2,042	$25	$51,050
3.9	Grading and Seeding	acre	2.5	$2,500	$6,250
3.10	Erosion Control Fabric	SY	12,250	$1.5	$18,375
	Task Subtotal				**$613,297**
4.0	***Chemical Oxidation of Groundwater***[(4)]				
4.1	ISCO Pilot Test (includes Mobilization, application, oversight, health and safety, and reporting)	LS	1	$50,875	$50,875
4.2	Full Scale Remediation (includes mobilization, application, oversight, health and safety, and reporting)	LS	1	$242,500	$242,500
4.3	Sampling	LS	1	$5,000	$5,000
	Task Subtotal				**$298,375**

Table 4.4, Continued

Item	Cost Item/Description	Unit	Quantity	Unit Cost	Total Cost
5.0	***Demobilization***				
5.1	Removal of Temporary Fencing, Erosion Controls, Utilities, Trailers	LS	1	$7,000	$7,000
5.2	Demobilization of Workers, Equipment, Materials	LS	1	$5,000	$5,000
Implementation Costs					
Item	**Cost Item/Description**	**Unit**	**Quantity**	**Unit Cost**	**Total Cost**
	Task Subtotal				**$12,000**
	Subtotal				**$1,475,957**
	Engineering/Oversight (10%)				$147,596
	Contingency (15%)				$221,393
	Subtotal				**$1,844,946**
	Total Capital Cost				**$1,845,000**
Operation & Maintenance Costs					
Cap/Cover Maintenance and Monitoring (Years 1 through 30) (5)					
1	Project Management, Administration, and Reporting(1)	LS	1	$6,000	$6,000
2	Cap/cover Maintenance and Monitoring	Acre	10.5	$3,000	$31,500
	Subtotal				$37,500
3	Contingency (% of the total)	15%			$5,625
4	Technical Support/Troubleshooting (% of total and contingency)	10%			$4,313
	Subtotal of Cap/Cover Costs				**$47,438**
LUCs (Years 1 through 30) (5,6)					
5	Project Management and Administration(1)	LS	1	$4,000	$4,000
6	LUCs(1,2)	LS	1	$9,000	$9,000
	Subtotal				$13,000
7	Contingency (% of the total)	15%			$1,950
	Subtotal of ICs				**$14,950**
	Subtotal Annual O&M Costs				**$62,388**
Total O&M Cost					**$1,871,625**
Total Cost					**$3,716,625**
Net Present Value for Alternative 4(7) (Assumes annual discount rate of 7%)					**$2,673,000**

Table 4.4, Continued

Notes:

1) Plans include design plans for cover and cap, Health and Safety plan, Quality Assurance/Quality Control Plans, and Sampling and Analysis Plans
2) Assumes 1 foot of clean material will be backfilled
3) Impermeable cap estimates based on several design cost estimates from a previous proposal received by Parsons
4) Chemical oxidations costs based on proposal for services from *In situ* Oxidative Technologies Inc (ISOTEC)
5) Parsons' estimate based on previous projects
6) LUCs do not include installation of a vapor intrusion system. Installation costs are dependent on the size of the proposed building(s) and would be paid by the building owner
7) NPV rounded to two significant digits.

Table 4.5
Summary of Alternatives for AOC 1

Remedial Alternative	Threshold Criteria: Protectiveness	Threshold Criteria: Compliance with ARARs	Primary Balancing Criteria: Long-Term Effectiveness	Short-Term Effectiveness	Reduction in TMV through Treatment	Implementability	Cost
Alternative 1: No Action	No	No	No	No	No	Very Easy	$0
Alternative 2: GW MNA/LUCs	Yes	No; estimated 50 years to reach organic compound ARARs; ARARs for metals in GW would not be met; however, LUCs eliminate GW pathway, and GW ARARs would no longer be relevent and appropriate.	Yes	Yes	Yes for GW	Easy	$0.3 million
Alternative 3: GW MNA/Soil Cover/Cap/LUCs	Yes; applies Containment Presumptive Remedy	Yes; estimated 50 years to reach organic compound ARARs; ARARs for metals in GW would not be met; however, LUCs eliminate GW pathway, and GW ARARs would no longer be relevent and appropriate.	Yes	Yes	Yes for GW; cap minimizes contaminant infiltration; MNA is not active treatment	Easy	$2.4 million
Alternative 4: Chemical Oxidation/Landfill Cover/Cap/LUCs	Yes; applies Containment Presumptive Remedy	Yes; Considered instantaneous GW remediation to meet organic compound ARARs; ARARs for metals in GW would not be met; however, LUCs eliminate GW pathway, and GW ARARs would no longer be relevent and appropriate.	Yes	Yes	Yes for GW; cap minimizes contaminant infiltration	Easy/Moderate	$2.67 million

GW - Groundwater
MNA - Monitored Natural Attenuation
LUC - Land Use Control
TMV - toxicity, mobility or volume
ARAR - Applicable or Relevant and Appropriate Requirement

SECTION 5

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APPENDIX A

SADVA REMEDIAL INVESTIGATION ANALYTICAL DATA TABLES AND FIGURES

SURFACE WATER SAMPLING REPORT
FOR POND AT AREA OF CONCERN 1
FORMER SCHENECTADY ARMY DEPOT - VOORHEESVILLE AREA
GUILDERLAND, NEW YORK

Prepared For:

U.S. ARMY CORPS OF ENGINEERS
Contract No. DACA87-02-D-0005

Task Order No. 0018

Prepared By:

PARSONS

May 2010

Table of Contents

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Appendices

1.0 INTRODUCTION

This Surface Water Sampling Report has been prepared by Parsons for the U.S. Army Corps of Engineers (USACE) – New York District in compliance with the Contract No. DACA87-02-D-0005, Task Order No. 0018 with the USACE – Huntsville Center. The purpose of this sampling effort is to obtain updated data on surface water quality in the pond at Area of Concern (AOC) 1 at the former Schenectady Army Depot – Voorheesville Area (SADVA).

2.0 SITE HISTORY AND BACKGROUND

A surface water sample (SW-08) collected from the pond during the remedial investigation in 2000 contained bis(2ethylhexyl)phthalate (BEHP) at 73 micrograms per liter (ug/L). That concentration was above the range of BEHP concentrations found in surface water samples upstream of the pond in Black Creek, and above the Class C standard for BEHP (0.6 ug/L). During the remedial investigation, the sample concentrations in Black Creek upstream of the pond ranged from non-detect to a detection of 26 ug/L. The pond at AOC 1 is classified by the New York State Department of Environmental Conservation (NYSDEC) as a Class C water body, suitable for fishing and fish propagation. It is noteworthy that SW-08 was a field duplicate sample, collected from the same location as sample SW-04. The SW-04 sample, collected concurrently with SW-08, had a concentration of BEHP at 16 ug/L, which is below the range of BEHP concentrations found upstream in Black Creek.

As part of the Feasibility Study for AOC 1, the United States Army Corps of Engineers (USACE) requested that Parsons collect a sample of pond water at the SW-04/SW-08 location to obtain a current assessment of the water quality in the pond, relative to BEHP concentrations.

3.0 SAMPLING AND ANALYTICAL METHODOLOGY

Parsons collected a sample of surface water from the pond on April 27, 2010. The sample was collected from the same location as SW-04/SW-08 had been previously collected in 2000 (see Figure 1). The sample was collected by dipping the sample container just below the surface of the water and gently filling the container until full.

The sample was designated SW-04 and was shipped overnight to the laboratory in East Syracuse, New York. The sample was analyzed for BEHP by Life Science Laboratory, Inc using Environmental Protection Agency (EPA) Method 8270. The analytical data were subsequently validated for usability by a Parsons chemist.

A data usability report is provided in Appendix A, and the Life Science Laboratory report is provided in Appendix B.

4.0 RESULTS

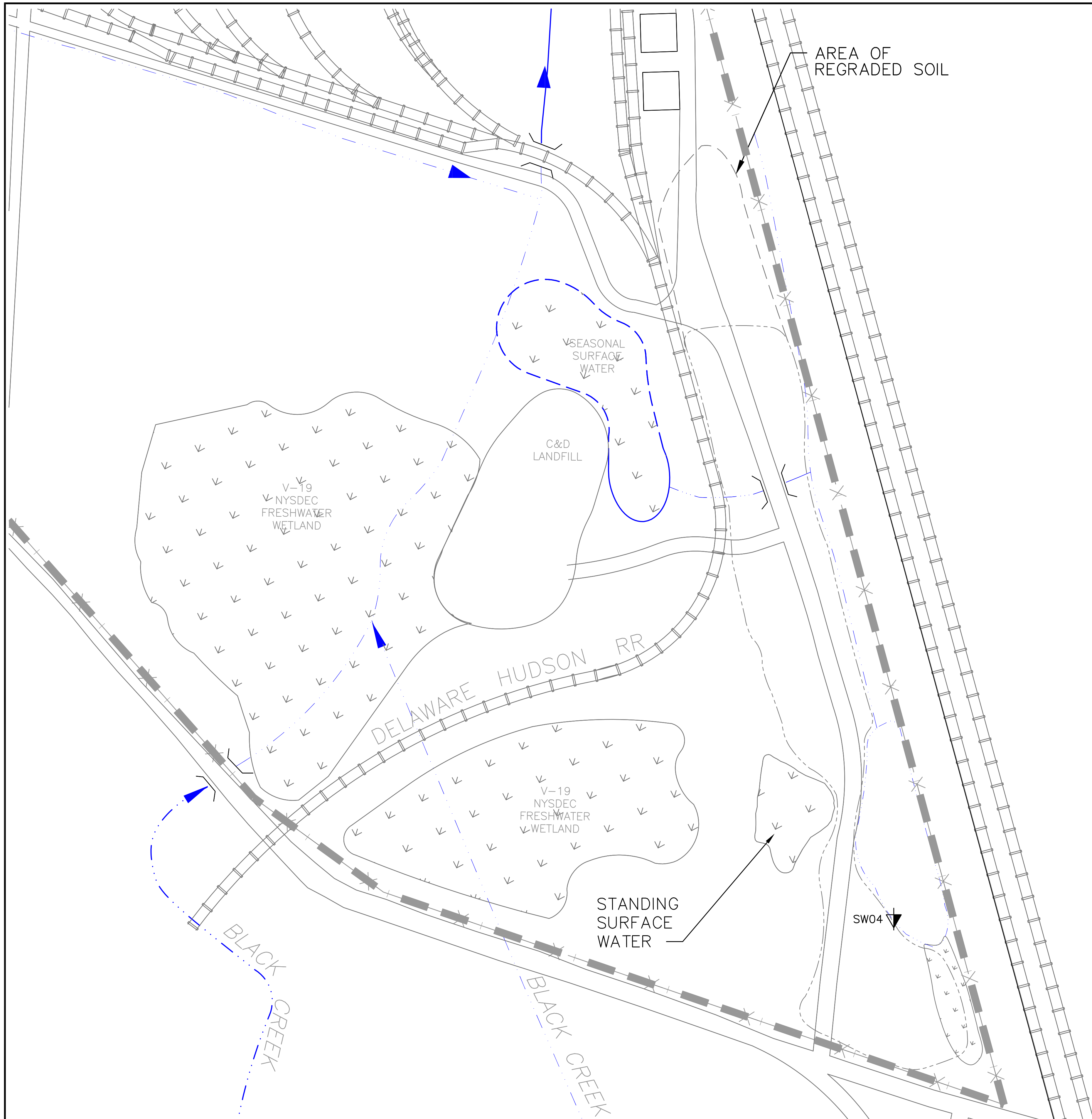
The SW-04 sample was reported by the laboratory as having an estimated BEHP concentration of 0.7 ug/L. The sample result was reported by the lab as being an estimated value because the concentration is below the reporting limit (10 ug/L) but above the method detection limit (0.4 ug/L). The laboratory also reported a concentration of BEHP in the method blank at 5 ug/L. This means that there was a small amount of BEHP present in the “clean” lab sample (method blank) that is run for quality control purposes. BEHP is a common lab contaminant related to plastics and is often found at very low concentrations in laboratory equipment. The Parsons Chemist validated the sample results using the EPA Functional Guidelines for Data Validation.

Due to the presence of BEHP in the lab method blank, it is possible that the low concentration found in sample SW-04 could be a false positive. In accordance with the EPA Functional Guidelines, the SW-04 sample should be considered to be not detected for BEHP at the reporting level of 10 ug/L. Therefore, the SW-04 sample collected in 2010 did not contain a detectable concentration of BEHP.

5.0 CONCLUSIONS

The 2010 sampling of the pond at AOC 1 showed that there was not a detectable concentration of BEHP. On that basis, the pond water quality meets the Class C BEHP standard of 0.6 ug/L, and is below the BEHP concentration range found upstream in Black Creek. During the remedial investigation, the sample concentrations in Black Creek upstream of the pond ranged from non-detect to a detection of 26 ug/L.

FIGURE



LEGEND:

SURFACE WATER SAMPLE LOCATION
(COLLECTED APRIL 2010)

AREA OF REGRADED SOIL

SITE BOUNDARY

APPROXIMATE FILL BOUNDARY

300 150 0 300 600

Approximate Scale in Feet

MAP SOURCE: MALCOLM PIRNIE, 1997

FIGURE 1

FORMER SADVA
GUILDERLAND, NEW YORK
AOC 1
U.S. ARMY
SOUTHERN LANDFILL
2010 SURFACE WATER SAMPLE LOCATION

PARSONS
310 PLAINFIELD ROAD * SUITE 350 * SYRACUSE, NY 13212 * 315/451-9560
OFFICES IN PRINCIPAL CITIES

APPENDIX A

Data Usability Report

DATA QUALITY REVIEW REPORT

Former Schenectady Army Depot AOC-3
Guilderland, New York

DATA QUALITY REVIEW AND ASSESSMENT

Data Quality Review Process

A Parsons Corporation project-specific data quality review was performed on 100% of the sample results and associated QA/QC data reported in the analytical report for Life Sciences Laboratory Project ID 1006452, Parsons Project ID SADVA-Schenectady Depot. The data review results in this report are for one water sample collected at the AOC-3 site by Parsons personnel. The sample was analyzed for the parameter listed in the Sample Summary Table. The data review pertained to the Method EPA 8270 bis(2-Ethylhexyl)phthalate (BEHP). The laboratory met all turnaround commitments and the revised final (second revision) report was dated May 24, 2010.

Sample Summary Table				
Parsons Sample ID	**Laboratory Sample ID**	**Sample Collection Date**	**Sample Matrix**	**Analyses Performed (as listed on Chain of Custody record)**
SW-4 (2010)	1006452-003	04/27/2010	Water	BEHP (EPA 8270)

The sample was properly preserved and analyzed within the holding time. The sample cooler was received with temperature of 3.6°C, which is within the acceptance range of 2-6 degrees Celsius. Chain-of-custody documentation was accurate and complete.

The data quality review consisted of manually examining the analytical data report to compare the laboratory QC sample results with the established laboratory QC limits, and with established USEPA sample preservation and analytical holding time requirements, in order to evaluate impacts, if any, on data quality and usability of the reported sample results. The data quality review addressed analytical data associated with the following: sample preservation and shipping cooler temperature, analytical holding time, method blank, surrogate spike recoveries, and laboratory control sample results.

The following sections describe the overall QA/QC indicators.

BEHP in Water by EPA Method 8270C

Sample SW-4 (2010) was extracted on 05/03/10 and analyzed on 05/07/2010, which is within the holding time.

Evaluation results for specific QC samples results are as follows:

- Laboratory method blank: The method blank contained BEHP at a concentration of 5 µg/L, which was less than the reporting limit (10 µg/L) but greater than the method detection limit (0.4 µg/L). As a result of the associated method blank contamination, the

SW-4 (2010) BEHP result (0.7 µg/L) should be considered to be a potential false-positive result and qualified as “10U”.

- Laboratory control sample (spike) (LCS): The LCS recovery for BEHP was within project criteria.
- Surrogate compounds: All surrogate recoveries were within acceptance limits for sample and QC samples.

Data Quality Summary

Based on evaluation of the results of the data quality review, the overall quality control data for method EPA 8270 BEHP provided in the laboratory report is representative of adequate method accuracy, but not of sample result representativeness, with regard to project objectives. For sample SW-4 (2010), the reported BEHP result (0.7J µg/L), which was reported by the laboratory with a data flag of “J” denoting an estimated concentration, is less than the reporting limit (RL) and should be considered to be an estimated concentration and, due to the associated method blank contamination, should also be considered to be a potential false-positive result. Following the USEPA National Functional Guidelines for Data Review, the SW-4 (2010) BEHP result should be assigned a data qualifier of “10U”. The sample result should therefore be utilized in the intended project decision-making process with consideration of the two identified data quality deficiencies affecting the sample result accuracy (result <RL) and representativeness (method blank contamination) and the applied data qualifier (10U).

APPENDIX B

Laboratory Analytical Report

LSL

George Moreau
Parsons
301 Plainfield Rd.
Suite 350
Syracuse, NY 13212

Phone: (315) 451-9560
FAX: (315) 451-9570
Authorization: Proj. #743440.00011

REVISED
5/24/10

Laboratory Analysis Report

For

Parsons

Client Project ID:

SADVA - Schenectady Depot

LSL Project ID: **1006452**

Receive Date/Time: 04/28/10 9:54

Project Received by: GS

Life Science Laboratories, Inc.

LSL Central Lab	LSL North Lab	LSL Finger Lakes Lab	LSL Southern Tier Lab	LSL MidLakes Lab
5854 Butternut Drive	131 St. Lawrence Avenue	16 N. Main St., PO Box 424	30 East Main Street	699 South Main Street
East Syracuse, NY 13057	Waddington, NY 13694	Wayland, NY 14572	Cuba, NY 14727	Canandaigua, NY 14424
Tel. (315) 445-1105	Tel. (315) 388-4476	Tel. (585) 728-3320	Tel. (585) 968-2640	Tel. (585) 396-0270
Fax (315) 445-1301	Fax (315) 388-4061	Fax (585) 728-2711	Fax (585) 968-0906	Fax (585) 396-0377
NYS DOH ELAP #10248	NYS DOH ELAP #10900	NYS DOH ELAP #11667	NYS DOH ELAP #10760	NYS DOH ELAP #11369
PA DEP #68-2556				

This report was reviewed by: [signature] Date: 5/24/10
Life Science Laboratories, Inc.

A copy of this report was sent to:

Date Printed: 5/24/10

REVISED 5/24/10

-- LABORATORY ANALYSIS REPORT --

Parsons *Syracuse, NY*

Sample ID: **IRR-01** **LSL Sample ID:** **1006452-002**
Location:
Sampled: 04/27/10 11:25 **Sampled By:** SBW
Sample Matrix: NPW

Analytical Method / Analyte	Result	Units	MDL	Prep Date	Analysis Date & Time		Analyst Initials
(1) EPA 140.1, Odor							
Odor	<1	T.O.N.			4/29/10	08:34	TER
(1) EPA 180.1 Turbidity							
Turbidity	6.9	NTU			4/28/10	12:35	DDR
(1) EPA 8082 PCB's							
Aroclor-1016	<0.05	ug/l	0.002	5/3/10	5/20/10		STS
Aroclor-1221	<0.05	ug/l	0.01	5/3/10	5/20/10		STS
Aroclor-1232	<0.05	ug/l	0.006	5/3/10	5/20/10		STS
Aroclor-1242	<0.05	ug/l	0.008	5/3/10	5/20/10		STS
Aroclor-1248	<0.05	ug/l	0.01	5/3/10	5/20/10		STS
Aroclor-1254	<0.05	ug/l	0.01	5/3/10	5/20/10		STS
Aroclor-1260	<0.05	ug/l	0.002	5/3/10	5/20/10		STS
Surrogate (DCB)	111	%R		5/3/10	5/6/10		STS
(1) EPA Method 200.8 Metals							
Please refer to the next page							
(1) SM 18-21 4500-H B (00) pH							
pH	6.8	Std. Units			4/28/10	11:14	RD
pH Measurement Temperature	25	Degrees C			4/28/10	11:14	RD

NYS DOH ELAP and NELAC specifications require pH to be measured immediately at the time of sample collection. Any laboratory analysis of pH should be considered to be performed past its holding time.

Analytical Method / Analyte	Result	Units	MDL	Prep Date	Analysis Date & Time		Analyst Initials
(1) SM18 2120B, Color							
Apparent Color	<5.0	Units			4/29/10	08:16	JJC
(1) SM18-2540C Total Dissolved Solids							
Total Dissolved Solids @ 180 C	380	mg/l		4/29/10	4/29/10	13:51	MM
(1) Total Coliform by Readycult Method							
Total Coliform	Negative				4/28/10	10:40	CVB
E. coli Screen	Negative				4/28/10	10:40	CVB

Sample ID: **SW-4 (2010)** **LSL Sample ID:** **1006452-003**
Location:
Sampled: 04/27/10 15:00 **Sampled By:** SBW
Sample Matrix: NPW

Analytical Method / Analyte	Result	Units	MDL	Prep Date	Analysis Date & Time	Analyst Initials
(1) EPA 8270 Semi-Volatiles (Partial List)						
bis(2-Ethylhexyl)phthalate	0.7 J	ug/l	0.4	5/3/10	5/7/10	MEG
J = estimated value.						
Surrogate (2-Fluorophenol)	78	%R		5/3/10	5/7/10	MEG
Surrogate (Phenol-d5)	76	%R		5/3/10	5/7/10	MEG
Surrogate (2,4,6-Tribromophenol)	141	%R		5/3/10	5/7/10	MEG
Surrogate (Nitrobenzene-d5)	88	%R		5/3/10	5/7/10	MEG
Surrogate (2-Fluorobiphenyl)	100	%R		5/3/10	5/7/10	MEG
Surrogate (Terphenyl-d14)	112	%R		5/3/10	5/7/10	MEG

REVISED 5/24/10

-- LABORATORY ANALYSIS REPORT --

Parsons ***Syracuse, NY***

Sample ID: LCS **LSL Sample ID:** **1006452-005**

Location:

Sampled: 04/28/10 0:00 **Sampled By:**

Sample Matrix: QC

Analytical Method Analyte	Result	Units	MDL	Prep Date	Analysis Date & Time	Analyst Initials
(1) EPA 524.2 Volatile Organic Chemicals						
1,2,3-Trichloropropane	80	%R			4/30/10	BD
1,2,4-Trimethylbenzene	92	%R			4/30/10	BD
1,3,5-Trimethylbenzene	90	%R			4/30/10	BD
Vinyl chloride	104	%R			4/30/10	BD
Bromodichloromethane	98	%R			4/30/10	BD
Bromoform	97	%R			4/30/10	BD
Chloroform	100	%R			4/30/10	BD
o-Xylene	95	%R			4/30/10	BD
m-Xylene	98*	%R			4/30/10	BD
Chromatographically, para- and meta- xylene co-elute. The report values may represent either of these compounds or a combination thereof.						
p-Xylene	*	%R			4/30/10	BD
Dibromochloromethane	88	%R			4/30/10	BD
Surrogate (1,2-DCA-d4)	97	%R			4/30/10	BD
Surrogate (4-BFB)	89	%R			4/30/10	BD
(1) EPA 8082 PCB's						
Aroclor-1016	105	%R		5/3/10	5/6/10	STS
Aroclor-1221				5/3/10	5/6/10	STS
Aroclor-1232				5/3/10	5/6/10	STS
Aroclor-1242				5/3/10	5/6/10	STS
Aroclor-1248				5/3/10	5/6/10	STS
Aroclor-1254				5/3/10	5/6/10	STS
Aroclor-1260	115	%R		5/3/10	5/6/10	STS
Surrogate (DCB)	116	%R		5/3/10	5/6/10	STS
(1) EPA 8270 Semi-Volatiles (Partial List)						
bis(2-Ethylhexyl)phthalate	88	%R		5/3/10	5/7/10	MEG
Surrogate (2-Fluorophenol)	83	%R		5/3/10	5/7/10	MEG
Surrogate (Phenol-d5)	83	%R		5/3/10	5/7/10	MEG
Surrogate (2,4,6-Tribromophenol)	151	%R		5/3/10	5/7/10	MEG
Surrogate (Nitrobenzene-d5)	90	%R		5/3/10	5/7/10	MEG
Surrogate (2-Fluorobiphenyl)	101	%R		5/3/10	5/7/10	MEG
Surrogate (Terphenyl-d14)	112	%R		5/3/10	5/7/10	MEG
(1) EPA Method 200.8 Metals						

Please refer to the next page

REVISED 5/24/10

-- LABORATORY ANALYSIS REPORT --

Parsons *Syracuse, NY*

Sample ID: Method Blank **LSL Sample ID:** 1006452-006

Location:

Sampled: 04/28/10 0:00 **Sampled By:**

Sample Matrix: QC

Analytical Method / Analyte	Result	Units	MDL	Prep Date	Analysis Date & Time	Analyst Initials
(1) EPA 524.2 Volatile Organic Chemicals						
1,2,3-Trichloropropane	<1	ug/l	1		4/30/10	BD
1,2,4-Trimethylbenzene	<1	ug/l	1		4/30/10	BD
1,3,5-Trimethylbenzene	<1	ug/l	1		4/30/10	BD
Vinyl chloride	<1	ug/l	1		4/30/10	BD
Bromodichloromethane	<1	ug/l	1		4/30/10	BD
Bromoform	<1	ug/l	1		4/30/10	BD
Chloroform	<1	ug/l	1		4/30/10	BD
o-Xylene	<1	ug/l	1		4/30/10	BD
m-Xylene	<1	ug/l	1		4/30/10	BD
p-Xylene	<1	ug/l	1		4/30/10	BD
Dibromochloromethane	<1	ug/l	1		4/30/10	BD
Surrogate (1,2-DCA-d4)	101	%R			4/30/10	BD
Surrogate (4-BFB)	94	%R	1		4/30/10	BD
(1) EPA 8082 PCB's						
Aroclor-1016	<0.05	ug/l	0.001	5/3/10	5/20/10	STS
Aroclor-1221	<0.05	ug/l	0.01	5/3/10	5/20/10	STS
Aroclor-1232	<0.05	ug/l	0.006	5/3/10	5/20/10	STS
Aroclor-1242	<0.05	ug/l	0.008	5/3/10	5/20/10	STS
Aroclor-1248	<0.05	ug/l	0.01	5/3/10	5/20/10	STS
Aroclor-1254	<0.05	ug/l	0.01	5/3/10	5/20/10	STS
Aroclor-1260	<0.05	ug/l	0.001	5/3/10	5/20/10	STS
Surrogate (DCB)	113	%R		5/3/10	5/6/10	STS
(1) EPA 8270 Semi-Volatiles (Partial List)						
bis(2-Ethylhexyl)phthalate	5.0	ug/l	0.4	5/3/10	5/7/10	MEG
Surrogate (2-Fluorophenol)	72	%R		5/3/10	5/7/10	MEG
Surrogate (Phenol-d5)	70	%R		5/3/10	5/7/10	MEG
Surrogate (2,4,6-Tribromophenol)	147	%R		5/3/10	5/7/10	MEG
Surrogate (Nitrobenzene-d5)	78	%R		5/3/10	5/7/10	MEG
Surrogate (2-Fluorobiphenyl)	87	%R		5/3/10	5/7/10	MEG
Surrogate (Terphenyl-d14)	132	%R		5/3/10	5/7/10	MEG
(1) EPA Method 200.8 Metals						
Please refer to the next page						
(1) SM18-2540C Total Dissolved Solids						
Total Dissolved Solids @ 180 C	<10	mg/l		4/29/10	4/29/10 13:49	MM

Life Science Laboratories, Inc.
5854 Butternut Drive
East Syracuse, NY 13057
Phone # (315) 445-1105 Telefax # (315) 445-1301

Chain of Custody Record

1006452

ParsonsEngScience

Client: Parsons - DNSC Phone # 315-451-9560
Address: 301 Plainfield Rd. Fax # 315-451-9570
Suite 350
Syracuse, NY 13212

Authorization:

Contact Person:

LSL Project #: K1004348

Client's Site I.D.: SADVA - Schenectady Depot

Client's Project I.D.: 743440.00011

LSL Sample Number	Client's Sample Identifications	Sample Date	Sample Time	Type grab	Type comp.	Matrix	Preserv. Added	Containers #	Containers size/type	Analyses	Free Cl (mg/L)	Pres. Check
001 A-E	MW-9	4-27-10	1335	X		Water	Prepres. By Lab	5	40 mL, 1 liter	VOC(524.2), Color, Odor, Bacteria, Turb., pH, TDS		
002 A-d	IRR-01	↓	1125	X		Water		7	various	VOCs, Color, Odor, Bacteria, Turb. pH, TDS, PCB, Pb		
003 AB	SW-4 (2010)	↓	1500	X		Water	↓	2	1 liter glass	BEHP		
004 AB	Trip Blank TB-1	4-27-10		X		Water		2	40 ml glass	VOCs		
005	LCS									524.2 Pcb, 625 BEHP Pb		
006	method blank									524.2 Pcb, 625 BEHP, TDS Pb		
IRR VOC's on separate Report. 1006451												

Notes and Hazard Identifications:
See order for methods and turn around time.

Custody Transfers		Date	Time
Sampled By: [signature]	Received By:	4-27-10	1730
Relinquished By:	Received By:		
Relinquished By:	Received for Lab By: [signature] 04-28-10	09:54	RCVD

Shipment Method: Via cups

3.6°C on ice

Samples Received Intact: Y N

TABLE 1-5

DETECTED ANALYTES IN SOIL SAMPLES
PHASE II SITE INVESTIGATION - OHM, 1991
US ARMY SOUTHERN DISPOSAL AREA

	B-4/ AMW-1	AMW-2	B-5/ AMW-3	B-6/ AMW-4	2AMW-5	2AMW-6	2AMW-7	2AMW-8	2AMW-9	2BMW-10	B-1	B-2	B-3
Sample depth (ft.)	**2-4**	**Unkn.**	**Unkn.**	**4-6**	**Unkn.**	**Unkn.**	**Unkn.**	**Unkn.**	**Unkn.**	**Unkn.**	**3.5-4.0**	**3.0**	**3-5**
VOLATILES (mg/kg)													
Acetone	0.393	ND	0.050	0.72	0.562	0.223	0.834	0.316	ND	1.92	ND	0.073	0.035
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.011	ND	ND
1,1-Dichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.023
Methylene chloride	0.234	0.814	0.436	0.476	0.089	0.196	0.810	0.143	0.298	1.80	0.842	0.311	0.963
Toluene	ND	ND	0.011	0.010	ND	ND	ND	ND	ND	ND	ND	0.014	ND
Trichloroethylene	ND	0.395	ND	ND	ND	ND	ND	ND	ND	ND	0.213	ND	0.269
Trans1,2-dichloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.033	0.019
1,1,2-Trichlorotrifluoroethane	ND	ND	0.060	0.028	ND	ND	ND	ND	ND	ND	0.027	0.026	0.027
m+p-Xylenes	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.017	ND
SEMIVOLATILE (mg/kg)													
Acenaphthene	ND	0.939	ND	ND	ND	ND	1.03	ND	ND	ND	ND	169	1.17
Anthracene	ND	2.24	ND	ND	ND	ND	4.20	ND	ND	ND	ND	413	3.16
Benzo(a)anthracene	ND	5.05	ND	ND	ND	ND	10.1	ND	ND	ND	ND	456	5.11
Benzo(b)fluoranthene	ND	ND	ND	ND	ND	ND	10.0	ND	ND	ND	ND	363	ND
Benzo(k)fluoranthene	ND	ND	ND	ND	ND	ND	3.68	ND	ND	ND	ND	222	ND
Benzo(ghi)perylene	ND	2.26	ND	ND	ND	ND	4.15	ND	ND	ND	ND	150	2.45
Benzo(a)pyrene	ND	4.15	ND	ND	ND	ND	8.27	ND	ND	ND	ND	365	4.42
Chrysene	ND	4.79	ND	ND	ND	ND	8.93	ND	ND	ND	ND	453	4.95
Dibenz(a,h)anthracene	ND	0.641	ND	ND	ND	ND	0.959	ND	ND	ND	ND	41.6	0.600
Dibenzofuran	ND	ND	ND	ND	ND	ND	0.869	ND	ND	ND	ND	96.9	0.576
Di-n-butylphthalate	ND	1.75	ND	ND	ND	1.16	ND	ND	0.765	ND	ND	ND	ND
Fluoranthene	ND	12.4	ND	ND	ND	ND	18.1	ND	0.742	ND	ND	992	11.6
Fluorene	ND	1.02	ND	ND	ND	ND	1.62	ND	ND	ND	ND	193	1.07
Indeno(1,2,3-cd)pyrene	ND	2.54	ND	ND	ND	ND	4.47	ND	ND	ND	ND	170	2.61
2-Methylnaphthalene	ND	ND	2.53	1.26	ND	ND	ND	ND	ND	ND	ND	40.2	ND
Naphthalene	ND	0.579	2.27	1.32	ND	ND	0.687	ND	ND	ND	ND	86.6	ND
Phenanthrene	ND	8.96	ND	ND	ND	ND	14.6	ND	ND	ND	ND	1110	9.70
Pyrene	ND	8.95	ND	ND	ND	ND	17.7	ND	ND	ND	ND	907	9.09

ND - Reporting limits for individual analytes are not available.

TABLE 1-5 (cont'd)

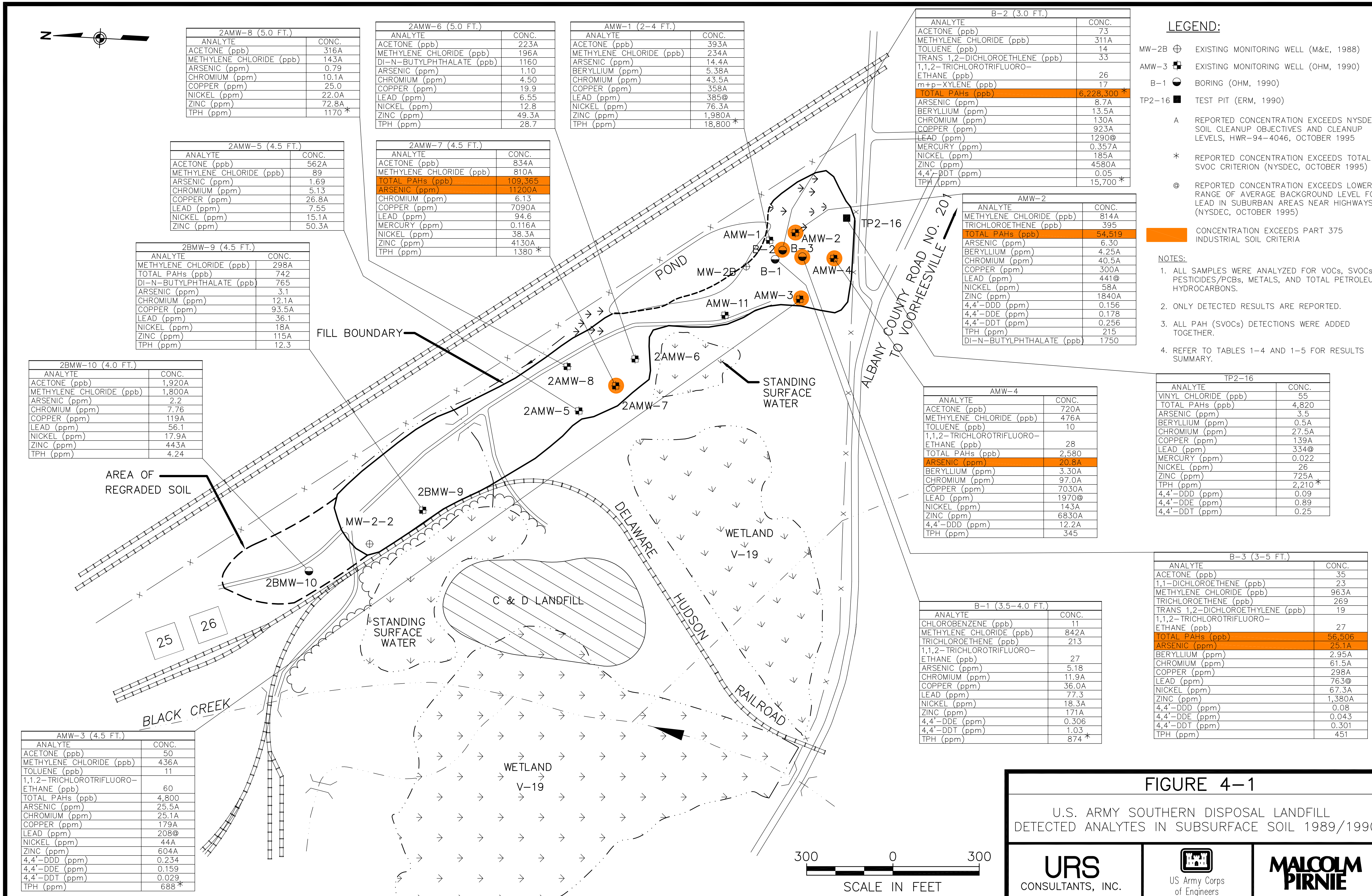
DETECTED ANALYTES IN SOIL SAMPLES
PHASE II SITE INVESTIGATION - OHM, 1991
US ARMY SOUTHERN DISPOSAL AREA

	B-4/ AMW-1	AMW-2	B-5/ AMW-3	B-6/ AMW-4	2AMW-5	2AMW-6	2AMW-7	2AMW-8	2AMW-9	2BMW-10	B-1	B-2	B-3
Sample depth (ft.)	**2-4**	**Unkn.**	**Unkn.**	**4-6**	**Unkn.**	**Unkn.**	**Unkn.**	**Unkn.**	**Unkn.**	**Unkn.**	**3.5-4.0**	**3.0**	**3-5**
METALS (mg/kg)													
Arsenic	14.4	6.30	25.5	20.8	1.69	1.10	11200	0.79	3.1	2.2	5.18	8.7	25.1
Beryllium	5.38	4.25	ND	3.30	ND	ND	ND	ND	ND	ND	ND	13.5	2.95
Chromium	43.5	40.5	25.1	97.0	5.13	4.50	6.13	10.1	12.1	7.76	11.9	130	61.5
Copper	358	300	179	7030	26.8	19.9	7090	25.0	93.5	119	36.0	923	298
Lead	385	441	208	1970	7.55	6.55	94.6	ND	36.1	56.1	77.3	1290	763
Mercury	ND	ND	ND	ND	ND	ND	0.116	ND	ND	ND	ND	0.357	ND
Nickel	76.3	58.0	44	143	15.1	12.8	38.3	22.0	18.0	17.9	18.3	185	67.3
Zinc	1980	1840	604	6830	50.3	49.3	4130	72.8	115	443	171	4580	1380
PESTICIDE/PCB (mg/kg)													
4,4'-DDD	ND	0.156	0.234	12.2	ND	ND	ND	ND	ND	ND	ND	ND	0.080
4,4'-DDE	ND	0.178	0.159	ND	ND	ND	ND	ND	ND	ND	0.306	ND	0.043
4,4'-DDT	ND	0.256	0.029	ND	ND	ND	ND	ND	ND	ND	1.03	0.050	0.301
TPH (mg/kg)	18800	215	688	345	ND	28.7	1380	1170	12.3	4.24	874	15700	451

Notes:
TPH - Total Petroleum Hydrocarbon
PCB - Polychlorinated Biphenyls
ND - Not detected
Unkn. - Unknown

ND - Reporting limits for individual analytes are not available.

/35378.11/CAD/11/ 1=300 4/14/97-3 KAH



2AMW-8 (5.0 FT.)	
ANALYTE	CONC.
ACETONE (ppb)	316A
METHYLENE CHLORIDE (ppb)	143A
ARSENIC (ppm)	0.79
CHROMIUM (ppm)	10.1A
COPPER (ppm)	25.0
NICKEL (ppm)	22.0A
ZINC (ppm)	72.8A
TPH (ppm)	1170 *

2AMW-6 (5.0 FT.)	
ANALYTE	CONC.
ACETONE (ppb)	223A
METHYLENE CHLORIDE (ppb)	196A
DI-N-BUTYLPHTHALATE (ppb)	1160
ARSENIC (ppm)	1.10
CHROMIUM (ppm)	4.50
COPPER (ppm)	19.9
LEAD (ppm)	6.55
NICKEL (ppm)	12.8
ZINC (ppm)	49.3A
TPH (ppm)	28.7

AMW-1 (2-4 FT.)	
ANALYTE	CONC.
ACETONE (ppb)	393A
METHYLENE CHLORIDE (ppb)	234A
ARSENIC (ppm)	14.4A
BERYLLIUM (ppm)	5.38A
CHROMIUM (ppm)	43.5A
COPPER (ppm)	358A
LEAD (ppm)	385@
NICKEL (ppm)	76.3A
ZINC (ppm)	1,980A
TPH (ppm)	18,800 *

B-2 (3.0 FT.)	
ANALYTE	CONC.
ACETONE (ppb)	73
METHYLENE CHLORIDE (ppb)	311A
TOLUENE (ppb)	14
TRANS 1,2-DICHLOROETHENE (ppb)	33
1,1,2-TRICHLOROTRIFLUORO-ETHANE (ppb)	26
m+p-XYLENE (ppb)	17
TOTAL PAHs (ppb)	6,228,300 *
ARSENIC (ppm)	8.7A
BERYLLIUM (ppm)	13.5A
CHROMIUM (ppm)	130A
COPPER (ppm)	923A
LEAD (ppm)	1290@
MERCURY (ppm)	0.357A
NICKEL (ppm)	185A
ZINC (ppm)	4580A
4,4'-DDT (ppm)	0.05
TPH (ppm)	15,700 *

LEGEND:

- MW-2B — EXISTING MONITORING WELL (M&E, 1988)
- AMW-3 — EXISTING MONITORING WELL (OHM, 1990)
- B-1 — BORING (OHM, 1990)
- TP2-16 — TEST PIT (ERM, 1990)
- A — REPORTED CONCENTRATION EXCEEDS NYSDEC SOIL CLEANUP OBJECTIVES AND CLEANUP LEVELS, HWR-94-4046, OCTOBER 1995
- * — REPORTED CONCENTRATION EXCEEDS TOTAL SVOC CRITERION (NYSDEC, OCTOBER 1995)
- @ — REPORTED CONCENTRATION EXCEEDS LOWER RANGE OF AVERAGE BACKGROUND LEVEL FOR LEAD IN SUBURBAN AREAS NEAR HIGHWAYS (NYSDEC, OCTOBER 1995)
- CONCENTRATION EXCEEDS PART 375 INDUSTRIAL SOIL CRITERIA

NOTES:

1. ALL SAMPLES WERE ANALYZED FOR VOCs, SVOCs, PESTICIDES/PCBs, METALS, AND TOTAL PETROLEUM HYDROCARBONS.
2. ONLY DETECTED RESULTS ARE REPORTED.
3. ALL PAH (SVOCs) DETECTIONS WERE ADDED TOGETHER.
4. REFER TO TABLES 1-4 AND 1-5 FOR RESULTS SUMMARY.

2AMW-5 (4.5 FT.)	
ANALYTE	CONC.
ACETONE (ppb)	562A
METHYLENE CHLORIDE (ppb)	89
ARSENIC (ppm)	1.69
CHROMIUM (ppm)	5.13
COPPER (ppm)	26.8A
LEAD (ppm)	7.55
NICKEL (ppm)	15.1A
ZINC (ppm)	50.3A

2AMW-7 (4.5 FT.)	
ANALYTE	CONC.
ACETONE (ppb)	834A
METHYLENE CHLORIDE (ppb)	810A
TOTAL PAHs (ppb)	109,365
ARSENIC (ppm)	11200A
CHROMIUM (ppm)	6.13
COPPER (ppm)	7090A
LEAD (ppm)	94.6
MERCURY (ppm)	0.116A
NICKEL (ppm)	38.3A
ZINC (ppm)	4130A
TPH (ppm)	1380 *

AMW-2	
ANALYTE	CONC.
METHYLENE CHLORIDE (ppb)	814A
TRICHLOROETHENE (ppb)	395
TOTAL PAHs (ppb)	54,519
ARSENIC (ppm)	6.30
BERYLLIUM (ppm)	4.25A
CHROMIUM (ppm)	40.5A
COPPER (ppm)	300A
LEAD (ppm)	441@
NICKEL (ppm)	58A
ZINC (ppm)	1840A
4,4'-DDD (ppm)	0.156
4,4'-DDE (ppm)	0.178
4,4'-DDT (ppm)	0.256
TPH (ppm)	215
DI-N-BUTYLPHTHALATE (ppb)	1750

2BMW-9 (4.5 FT.)	
ANALYTE	CONC.
METHYLENE CHLORIDE (ppb)	298A
TOTAL PAHs (ppb)	742
DI-N-BUTYLPHTHALATE (ppb)	765
ARSENIC (ppm)	3.1
CHROMIUM (ppm)	12.1A
COPPER (ppm)	93.5A
LEAD (ppm)	36.1
NICKEL (ppm)	18A
ZINC (ppm)	115A
TPH (ppm)	12.3

2BMW-10 (4.0 FT.)	
ANALYTE	CONC.
ACETONE (ppb)	1,920A
METHYLENE CHLORIDE (ppb)	1,800A
ARSENIC (ppm)	2.2
CHROMIUM (ppm)	7.76
COPPER (ppm)	119A
LEAD (ppm)	56.1
NICKEL (ppm)	17.9A
ZINC (ppm)	443A
TPH (ppm)	4.24

TP2-16	
ANALYTE	CONC.
VINYL CHLORIDE (ppb)	55
TOTAL PAHs (ppb)	4,820
ARSENIC (ppm)	3.5
BERYLLIUM (ppm)	0.5A
CHROMIUM (ppm)	27.5A
COPPER (ppm)	139A
LEAD (ppm)	334@
MERCURY (ppm)	0.022
NICKEL (ppm)	26
ZINC (ppm)	725A
TPH (ppm)	2,210 *
4,4'-DDD (ppm)	0.09
4,4'-DDE (ppm)	0.89
4,4'-DDT (ppm)	0.25

AMW-4	
ANALYTE	CONC.
ACETONE (ppb)	720A
METHYLENE CHLORIDE (ppb)	476A
TOLUENE (ppb)	10
1,1,2-TRICHLOROTRIFLUORO-ETHANE (ppb)	28
TOTAL PAHs (ppb)	2,580
ARSENIC (ppm)	20.8A
BERYLLIUM (ppm)	3.30A
CHROMIUM (ppm)	97.0A
COPPER (ppm)	7030A
LEAD (ppm)	1970@
NICKEL (ppm)	143A
ZINC (ppm)	6830A
4,4'-DDD (ppm)	12.2A
TPH (ppm)	345

B-3 (3-5 FT.)	
ANALYTE	CONC.
ACETONE (ppb)	35
1,1-DICHLOROETHENE (ppb)	23
METHYLENE CHLORIDE (ppb)	963A
TRICHLOROETHENE (ppb)	269
TRANS 1,2-DICHLOROETHYLENE (ppb)	19
1,1,2-TRICHLOROTRIFLUORO-ETHANE (ppb)	27
TOTAL PAHs (ppb)	56,506
ARSENIC (ppm)	25.1A
BERYLLIUM (ppm)	2.95A
CHROMIUM (ppm)	61.5A
COPPER (ppm)	298A
LEAD (ppm)	763@
NICKEL (ppm)	67.3A
ZINC (ppm)	1,380A
4,4'-DDD (ppm)	0.08
4,4'-DDE (ppm)	0.043
4,4'-DDT (ppm)	0.301
TPH (ppm)	451

B-1 (3.5-4.0 FT.)	
ANALYTE	CONC.
CHLOROBENZENE (ppb)	11
METHYLENE CHLORIDE (ppb)	842A
TRICHLOROETHENE (ppb)	213
1,1,2-TRICHLOROTRIFLUORO-ETHANE (ppb)	27
ARSENIC (ppm)	5.18
CHROMIUM (ppm)	11.9A
COPPER (ppm)	36.0A
LEAD (ppm)	77.3
NICKEL (ppm)	18.3A
ZINC (ppm)	171A
4,4'-DDE (ppm)	0.306
4,4'-DDT (ppm)	1.03
TPH (ppm)	874 *

AMW-3 (4.5 FT.)	
ANALYTE	CONC.
ACETONE (ppb)	50
METHYLENE CHLORIDE (ppb)	436A
TOLUENE (ppb)	11
1,1,2-TRICHLOROTRIFLUORO-ETHANE (ppb)	60
TOTAL PAHs (ppb)	4,800
ARSENIC (ppm)	25.5A
CHROMIUM (ppm)	25.1A
COPPER (ppm)	179A
LEAD (ppm)	208@
NICKEL (ppm)	44A
ZINC (ppm)	604A
4,4'-DDD (ppm)	0.234
4,4'-DDE (ppm)	0.159
4,4'-DDT (ppm)	0.029
TPH (ppm)	688 *

FIGURE 4-1

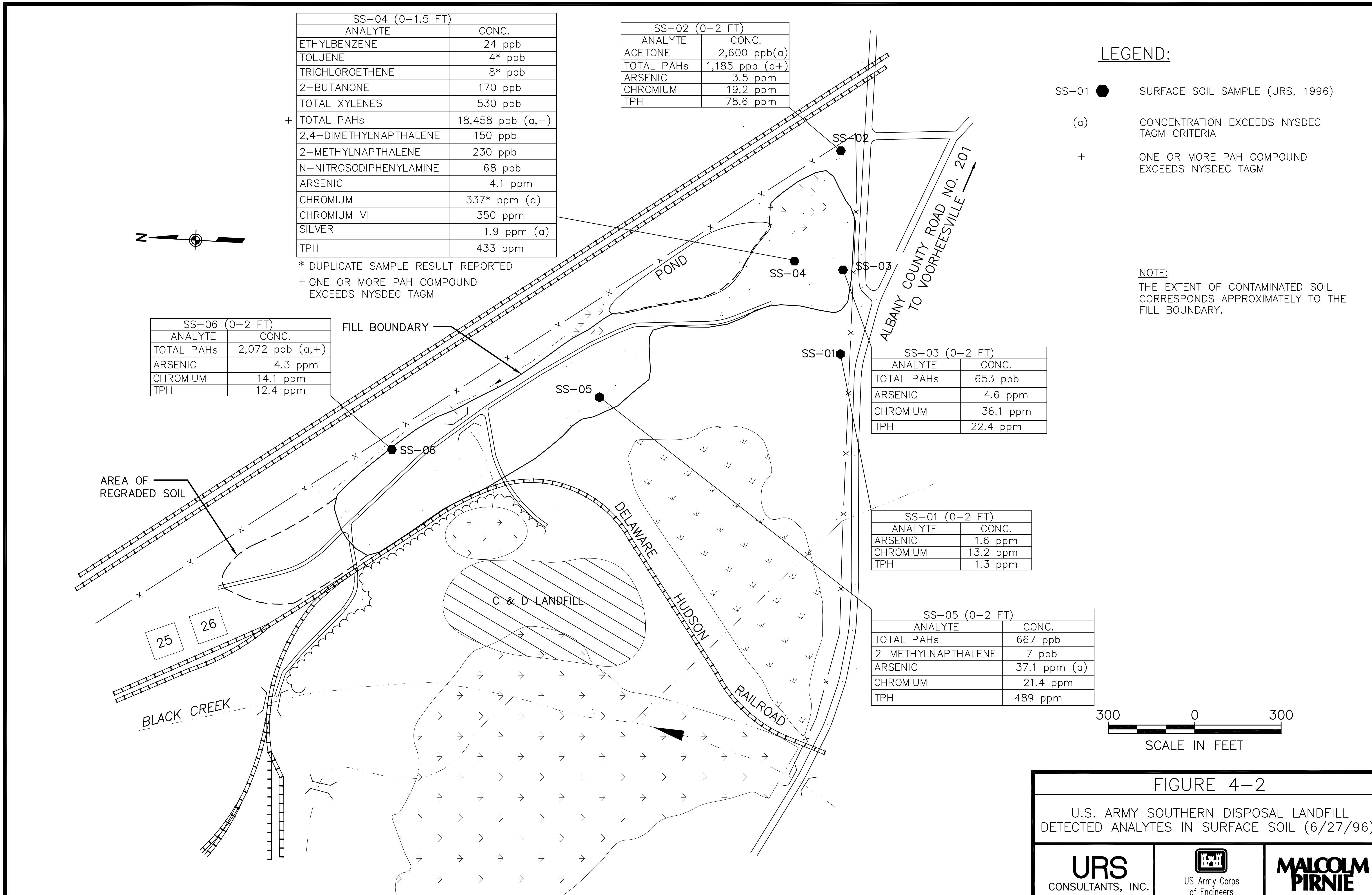
U.S. ARMY SOUTHERN DISPOSAL LANDFILL
DETECTED ANALYTES IN SUBSURFACE SOIL 1989/1990

URS CONSULTANTS, INC.

US Army Corps of Engineers

MALCOLM PIRNIE

CC-4724



SS-04 (0-1.5 FT)	
ANALYTE	CONC.
ETHYLBENZENE	24 ppb
TOLUENE	4* ppb
TRICHLOROETHENE	8* ppb
2-BUTANONE	170 ppb
TOTAL XYLENES	530 ppb
+ TOTAL PAHs	18,458 ppb (a,+)
2,4-DIMETHYLNAPTHALENE	150 ppb
2-METHYLNAPTHALENE	230 ppb
N-NITROSODIPHENYLAMINE	68 ppb
ARSENIC	4.1 ppm
CHROMIUM	337* ppm (a)
CHROMIUM VI	350 ppm
SILVER	1.9 ppm (a)
TPH	433 ppm

* DUPLICATE SAMPLE RESULT REPORTED

\+ ONE OR MORE PAH COMPOUND EXCEEDS NYSDEC TAGM

SS-02 (0-2 FT)	
ANALYTE	CONC.
ACETONE	2,600 ppb(a)
TOTAL PAHs	1,185 ppb (a+)
ARSENIC	3.5 ppm
CHROMIUM	19.2 ppm
TPH	78.6 ppm

SS-06 (0-2 FT)	
ANALYTE	CONC.
TOTAL PAHs	2,072 ppb (a,+)
ARSENIC	4.3 ppm
CHROMIUM	14.1 ppm
TPH	12.4 ppm

SS-03 (0-2 FT)	
ANALYTE	CONC.
TOTAL PAHs	653 ppb
ARSENIC	4.6 ppm
CHROMIUM	36.1 ppm
TPH	22.4 ppm

SS-01 (0-2 FT)	
ANALYTE	CONC.
ARSENIC	1.6 ppm
CHROMIUM	13.2 ppm
TPH	1.3 ppm

SS-05 (0-2 FT)	
ANALYTE	CONC.
TOTAL PAHs	667 ppb
2-METHYLNAPTHALENE	7 ppb
ARSENIC	37.1 ppm (a)
CHROMIUM	21.4 ppm
TPH	489 ppm

FIGURE 4-2

U.S. ARMY SOUTHERN DISPOSAL LANDFILL
DETECTED ANALYTES IN SURFACE SOIL (6/27/96)

URS CONSULTANTS, INC. | US Army Corps of Engineers | MALCOLM PIRNIE

/35378.11/CAD/11/ 1=300 4/18/97-7 RAL

FILE NAME: P:\743440 (SADVA)\CAD\CE\2010\743440-SK004.DWG
PLOT DATE: 5/18/2010 9:43 AM PLOTTED BY: RUSSO, JILL

Table A-1
Detected Chemicals in Mixed (Surface/Subsurface) Soil
SADVA - AOCs 1 and 7 Compared to NYSDEC Part 375 Soil Cleanup Objectives

		NYSDEC	NYSDEC	NYSDEC	LOCATION		AOC 7	AOC 4	AOC 7	AOC 1	AOC 1	AOC 7	AOC 7	AOC 7	AOC 7	AOC 7
		PART 375 UNRESTRICTED LAND USE CRITERIA	PART 375 RESIDENTIAL LAND USE CRITERIA	PART 375 INDUSTRIAL LAND USE CRITERIA	SAMPLE ID:		SD-SS-GW01-0-0.5	SD-SS-GW02-0-0.5	SD-SS-GW03-0-0.5 [a]	SD-GW12C AOC1	SD-GW14DE AOC1	SD-SS-GW01-10-12	SD-SS-GW02-38-40	SD-SS-GW03-10-12	AOC7-SB01A	AOC7-SB02A
					DEPTH:		0-0.5'	0-0.5'	0-0.5'	6-8'	6-10'	10-12'	38-40'	10-12'	0.2'	0.2'
PARAMETER	**CAS NUMBER**				SAMPLED:	MAX VALUE	6/14/2004	6/15/2004	6/15/2004	11/23/2004	11/19/2004	6/14/2004	6/15/2004	6/15/2004	7/21/2000	7/21/2000
					UNITS:											
VOLATILES																
Acetone	67-64-1	50	100,000	1,000,000	µg/kg	2600	--	--	--	--	--	--	--	--	23 U	22 U
Ethylbenzene	100-41-4	1000	30,000	780,000	µg/kg	24	--	--	--	--	--	--	--	--	5.7 U	5.6 U
Toluene	108-88-3	700	100,000	1,000,000	µg/kg	4	--	--	--	--	--	--	--	--	5.7 U	5.6 U
Trichloroethene	79-01-6	470	10,000	400,000	µg/kg	8	--	--	--	--	--	--	--	--	5.7 U	5.6 U
Methyl Ethyl Ketone (2-Butanone)	78-93-3	120	100,000	1,000,000	µg/kg	170	--	--	--	--	--	--	--	--	23 UJ	22 UJ
Xylene (total)	1330-20-7	260	100,000	1,000,000	µg/kg	530	--	--	--	--	--	--	--	--	5.7 U	5.6 U
SEMIVOLATILES																
Acenaphthene	83-32-9	20,000	100,000	1,000,000	µg/kg	350	360 U	350 J	360 U	--	--	750 U	360 U	420 U	370 U	370 U
Acenaphthylene	208-96-8	100,000	100,000	1,000,000	µg/kg	120	360 U	39 J	360 U	--	--	750 U	360 U	420 U	370 U	370 U
Anthracene	120-12-7	100,000	100,000	1,000,000	µg/kg	730	360 U	730	360 U	--	--	750 U	360 U	420 U	370 U	370 U
Benzo(a)anthracene	56-55-3	1,000	1,000	11,000	µg/kg	2400	54 J	2400	360 U	--	--	750 U	360 U	420	16 J	13 J
Benzo(b)fluoranthene	205-99-2	1,000	1,000	11,000	µg/kg	2700	82 J	2700	55 J	--	--	750 U	360 U	420	18 J	25 J
Benzo(k)fluoranthene	207-08-9	800	1,000	110,000	µg/kg	940	360 U	940	360 U	--	--	750 U	360 U	420	24 J	25 J
Benzo(a)pyrene	50-32-8	1,000	1,000	1,100	µg/kg	2400	46 J	2400	360 U	--	--	750 U	360 U	420	15 J	13 J
Benzo(g,h,i)perylene	191-24-2	100,000	100,000	1,000,000	µg/kg	1600	59 J	1600	44 J	--	--	750 U	360 U	420 U	10 J	12 J
bis(2-Ethylhexyl)phthalate	117-81-7	NA	NA	NA	µg/kg	74	--	--	--	360 U	74 J	--	--	--	370 U	370 U
Carbazole	86-74-8	NA	NA	NA	µg/kg	1300	360 U	310 J	360 U	--	--	750 U	360 U	420 U	370 U	370 U
Chrysene	218-01-9	1,000	1,000	110,000	µg/kg	2800	94 J	2800	71 J	--	--	750 U	360 U	420 U	26 J	29 J
Dibenz(a,h)anthracene	53-70-3	330	330	1,100	µg/kg	420	360 U	420	360 U	--	--	750 U	360 U	420 U	370 U	370 U
Dibenzofuran	132-64-9	NA	NA	NA	µg/kg	120	360 U	120 J	360 U	--	--	750 U	360 U	420 U	370 U	370 U
Di-n-butylphthalate	84-74-2	NA	NA	NA	µg/kg	100	46 J	37 J	42 J	--	--	750 U	360 U	420 U	370 U	370 U
Fluoranthene	206-44-0	100,000	100,000	1,000,000	µg/kg	6100	93 J	6100	85 J	--	--	750 U	360 U	420 U	38 J	41 J
Fluorene	86-73-7	30,000	100,000	1,000,000	µg/kg	220	--	--	--	--	--	--	--	--	370 U	370 U
Indeno(1,2,3-cd)pyrene	193-39-5	500	500	11,000	µg/kg	1700	53 J	1700	37 J	--	--	750 U	360 U	420 U	11 J	11 J
Naphthalene	91-20-3	12,000	100,000	1,000,000	µg/kg	410	360 U	74 J	360 U	--	--	750 U	360 U	420 U	370 U	370 U
Phenanthrene	85-01-8	100,000	100,000	1,000,000	µg/kg	3100	57 J	3100	37 J	--	--	750 U	360 U	420 U	16 J	19 J
Pyrene	129-00-0	100,000	100,000	1,000,000	µg/kg	4200	90 J	4200	73 J	--	--	750 U	360 U	420 U	28 J	29 J
2,4-Dimethylphenol	105-67-9	NA	NA	NA	µg/kg	150	--	--	--	--	--	--	--	--	370 U	370 U
2-Methylnaphthalene	91-57-6	NA	NA	NA	µg/kg	230	360 U	50 J	360 U	--	--	750 U	360 U	420 U	370 U	370 U
Dibenzofuran	132-64-9	NA	NA	NA	µg/kg	110	--	--	--	--	--	--	--	--	370 U	370 U
N-Nitrosodiphenylamine	86-30-6	NA	NA	NA	µg/kg	68	--	--	--	--	--	--	--	--	370 U	370 U
PESTICIDES/PCBs																
4,4'-DDE	72-55-9	3.3	1,800	120,000	µg/kg	2.1	--	--	--	--	--	--	--	--	0.077 JN	0.29 JN
Endrin	72-20-8	14	2,200	410,000	µg/kg	0.29	--	--	--	--	--	--	--	--	1.9 U	0.29 JN
Endrin aldehyde	7421-93-4	NA	NA	NA	µg/kg	2.9	--	--	--	--	--	--	--	--	1.9 U	1.9 U
4,4'-DDD	72-54-8	3.3	2,600	180,000	µg/kg	2.7	--	--	--	--	--	--	--	--	1.9 U	1.9 U
4,4'-DDT	50-29-3	3.3	1,700	94,000	µg/kg	6.9	--	--	--	--	--	--	--	--	1.9 U	0.45 J
Aroclor 1260	1336-36-3	100	1,000	25,000	µg/kg	160	--	--	--	--	--	--	--	--	1.9 U	1.9 U
Metals																
Aluminum	7429-90-5	NA	NA	NA	mg/kg	15100	--	--	--	10700	10300	--	--	--	10600	10400
Antimony	7440-36-0	NA	NA	NA	mg/kg	0.36	--	--	--	--	--	--	--	--	0.19 J	0.29 J
Arsenic	7440-38-2	13	16	16	mg/kg	8.6	--	--	--	7.7	5.8	--	--	--	5.9	5.7
Barium	7440-39-3	350	350	10,000	mg/kg	140	--	--	--	140 J	60 J	--	--	--	40	39.4
Beryllium	7440-41-7	7.2	14	2,700	mg/kg	1.2	--	--	--	0.81	0.82	--	--	--	0.52 J	0.54 J
Cadmium	7440-43-9	2.5	2.5	60	mg/kg	0.65	--	--	--	0.33 J	0.31 J	--	--	--	0.53 J	0.44 J
Calcium	7440-70-2	NA	NA	NA	mg/kg		--	--	--	18500 J	21500 J	--	--	--	7350	3890
Chromium	7440-47-3	30	36	6,800	mg/kg	337	--	--	--	15.8	15.2	--	--	--	16.9 J	15.7 J
Chromium VI	18540-29-9	1	22	800	mg/kg	350	--	--	--	--	--	--	--	--	--	--
Cobalt	7440-48-4	NA	NA	NA	mg/kg	15	--	--	--	11	10.1	--	--	--	11.8 J	11.8 J
Copper	7440-50-8	50	270	10,000	mg/kg	32.7	--	--	--	27.7	27.3	--	--	--	29.2	24.9
Iron	7439-89-6	NA	NA	NA	mg/kg		--	--	--	24600	24800	--	--	--	26700 J	25400 J
Lead	7439-92-1	63	400	3,900	mg/kg	35.4	--	--	--	12.8 J	9.8 J	--	--	--	19.3	15.2
Magnesium	7439-95-4	NA	NA	NA	mg/kg		--	--	--	8470	8570	--	--	--	6340	4820
Manganese	7439-96-5	1600	2000	10,000	mg/kg	649	--	--	--	477	483	--	--	--	649	549
Mercury	7439-97-6	0.18	0.81	6	mg/kg	0.064	--	--	--	0.023 J	0.014 J	--	--	--	0.044	0.047
Nickel	7440-02-0	30	140	10,000	mg/kg	27.3	--	--	--	24.6 J	23.8 J	--	--	--	26.2 J	22.9 J
Potassium	7440-09-7	NA	NA	NA	mg/kg		--	--	--	1910	1850	--	--	--	1370	1140
Selenium	7782-49-2	3.9	36	6,800	mg/kg	1	--	--	--	1 J	0.94 J	--	--	--	0.24 U	0.24 U
Silver	7440-22-4	2	36	6,800	mg/kg	1.9	--	--	--	0.13 J	0.12 J	--	--	--	0.12 J	0.15 J
Sodium	7440-23-5	NA	NA	NA	mg/kg		--	--	--	153 J	133 J	--	--	--	50.4 J	46.3 J
Thallium	7440-28-0	NA	NA	NA	mg/kg	0.95	--	--	--	--	--	--	--	--	0.44 U	0.44 U
Vanadium	7440-62-2	NA	NA	NA	mg/kg	35.7	--	--	--	20.5	20.3	--	--	--	20.9	22.9
Zinc	7440-66-6	109	2200	10,000	mg/kg	114	--	--	--	53.3 J	53.5 J	--	--	--	88.9	79.8

J = Estimated Value
UJ = Analyte not detected; the number is the estimated analytical reporting limit.
U = Analyte not detected; the number is the analytical reporting limit.
R = Rejected during data validation
D = Diluted
ND = Not Detected
N = Presumptive Evidence; compound identification is not definitive
SB = Site Background
NS = No Standard
Concentration above NYSDEC Soil Criteria.
"--" Not detected or not analyzed (refer to Table A-2 for complete listing of all analytes and reporting limits)

a) The highest result between samples SD-SS-GW03-0-0.5 and SD-SS-GW103-0-0.5 (dup of SD-SS-GW03-0-0.5) is reported.
c) The highest result between samples SS-04-0,18 and SS-04-0,18 DUP is reported.

Soil concentration exceeds the Part 375 unrestricted soil cleanup objective
Soil concentration exceeds the Part 375 residential soil cleanup objective
Soil concentration exceeds the Part 375 industrial soil cleanup objective

Table A-1
Detected Chemicals in Mixed (Surface/Subsurface) Soil
SADVA - AOCs 1 and 7 Compared to NYSDEC Part 375 Soil Cleanup Objectives

PARAMETER	CAS NUMBER	NYSDEC PART 375 UNRESTRICTED LAND USE CRITERIA	NYSDEC PART 375 RESIDENTIAL LAND USE CRITERIA	NYSDEC PART 375 INDUSTRIAL LAND USE CRITERIA	LOCATION	AOC 7	AOC 7	AOC 7	AOC 7	AOC 7	AOC 7	AOC 7	AOC 7	AOC 7	AOC 7	AOC 1	AOC 1
					SAMPLE ID:	AOC7-SB03A	AOC7-SB04A	AOC7-SB01B	AOC7-SB01C	AOC7-SB02B	AOC7-SB02C	AOC7-SB03B	AOC7-SB03C	AOC7-SB04B	AOC7-SB04C	SS-04-12,18 [b]	SS-05-12,18
					DEPTH:	0.2'	0.2'	3'	5'	3'	5'	3'	5'	3'	5'	1-1.5	1-1.5
					SAMPLED:	7/21/2000	7/21/2000	8/15/2000	8/15/2000	8/15/2000	8/15/2000	8/15/2000	8/15/2000	8/15/2000	8/15/2000	01-Jul-96	01-Jul-96
					UNITS:												
VOLATILES																	
Acetone	67-64-1	50	100,000	1,000,000	µg/kg	23 U	24 U	22 UJ	30 J	21 UJ	25 UJ	21 UJ	4 J	22 UJ	24 UJ	27 U	6 U
Ethylbenzene	100-41-4	1000	30,000	780,000	µg/kg	5.6 U	6 U	5.5 U	6 U	5.3 U	6.3 U	5.3 U	6.3 U	5.5 U	6 U	24 J	6 U
Toluene	108-88-3	700	100,000	1,000,000	µg/kg	5.6 U	6 U	5.5 U	6 U	1.6 J	3.1 J	5.3 U	6.3 U	5.5 U	6 U	4 J	6 U
Trichloroethene	79-01-6	470	10,000	400,000	µg/kg	5.6 U	6 U	5.5 U	6 U	5.3 U	6.3 U	5.3 U	6.3 U	5.5 U	6 U	8 J	6 U
Methyl Ethyl Ketone (2-Butanone)	78-93-3	120	100,000	1,000,000	µg/kg	23 UJ	24 UJ	22 UJ	24 UJ	21 UJ	25 UJ	21 UJ	25 UJ	22 UJ	24 UJ	170	6 U
Xylene (total)	1330-20-7	260	100,000	1,000,000	µg/kg	5.6 U	6 U	5.5 U	6 U	5.3 U	6.3 U	5.3 U	6.3 U	5.5 U	6 U	530	6 U
SEMIVOLATILES																	
Acenaphthene	83-32-9	20,000	100,000	1,000,000	µg/kg	370 U	390 U	360 U	390 U	350 U	420 U	350 U	410 U	360 U	390 U	--	--
Acenaphthylene	208-96-8	100,000	100,000	1,000,000	µg/kg	370 U	390 U	360 U	390 U	350 U	420 U	350 U	410 U	360 U	390 U	--	--
Anthracene	120-12-7	100,000	100,000	1,000,000	µg/kg	370 U	390 U	360 U	390 U	350 U	420 U	350 U	410 U	360 U	390 U	--	--
Benzo(a)anthracene	56-55-3	1,000	1,000	11,000	µg/kg	10 J	39 J	360 U	390 U	350 U	420 U	350 U	410 U	29 J	390 U	--	--
Benzo(b)fluoranthene	205-99-2	1,000	1,000	11,000	µg/kg	12 J	56 J	360 U	390 U	350 U	420 U	350 U	410 U	360 U	390 U	--	--
Benzo(k)fluoranthene	207-08-9	800	1,000	110,000	µg/kg	15 J	65 J	360 U	390 U	350 U	420 U	350 U	410 U	360 U	390 U	--	--
Benzo(a)pyrene	50-32-8	1,000	1,000	1,100	µg/kg	9.7 J	43 J	360 U	390 U	350 U	420 U	350 U	410 U	360 U	390 U	--	--
Benzo(g,h,i)perylene	191-24-2	100,000	100,000	1,000,000	µg/kg	370 U	27 J	360 U	390 U	350 U	420 U	350 U	410 U	360 U	390 U	--	--
bis(2-Ethylhexyl)phthalate	117-81-7	NA	NA	NA	µg/kg	370 U	390 U	360 U	390 U	350 U	420 U	350 U	410 U	58 J	390 U	--	--
Carbazole	86-74-8	NA	NA	NA	µg/kg	370 U	390 U	360 U	390 U	350 U	420 U	350 U	410 U	360 U	390 U	--	--
Chrysene	218-01-9	1,000	1,000	110,000	µg/kg	14 J	67 J	360 U	390 U	350 U	420 U	350 U	410 U	53 J	390 U	--	--
Dibenz(a,h)anthracene	53-70-3	330	330	1,100	µg/kg	370 U	390 U	360 U	390 U	350 U	420 U	350 U	410 U	360 U	390 U	--	--
Dibenzofuran	132-64-9	NA	NA	NA	µg/kg	370 U	390 U	360 U	390 U	350 U	420 U	350 U	410 U	360 U	390 U	--	--
Di-n-butylphthalate	84-74-2	NA	NA	NA	µg/kg	100 J	390 U	360 U	390 U	350 U	420 U	350 U	410 U	360 U	390 U	--	--
Fluoranthene	206-44-0	100,000	100,000	1,000,000	µg/kg	23 J	89 J	360 U	390 U	350 U	420 U	350 U	410 U	170 J	390 U	--	--
Fluorene	86-73-7	30,000	100,000	1,000,000	µg/kg	370 U	390 U	360 U	390 U	350 U	420 U	350 U	410 U	360 U	390 U	--	--
Indeno(1,2,3-cd)pyrene	193-39-5	500	500	11,000	µg/kg	370 U	29 J	360 U	390 U	350 U	420 U	350 U	410 U	360 U	390 U	--	--
Naphthalene	91-20-3	12,000	100,000	1,000,000	µg/kg	370 U	390 U	360 U	390 U	350 U	420 U	350 U	410 U	360 U	390 U	--	--
Phenanthrene	85-01-8	100,000	100,000	1,000,000	µg/kg	370 U	44 J	360 U	390 U	350 U	420 U	350 U	410 U	30 J	390 U	--	--
Pyrene	129-00-0	100,000	100,000	1,000,000	µg/kg	17 J	64 J	360 U	390 U	350 U	420 U	350 U	410 U	100 J	390 U	--	--
2,4-Dimethylphenol	105-67-9	NA	NA	NA	µg/kg	370 U	390 U	360 U	390 U	350 U	420 U	350 U	410 U	360 U	390 U	--	--
2-Methylnaphthalene	91-57-6	NA	NA	NA	µg/kg	370 U	390 U	360 U	390 U	350 U	420 U	350 U	410 U	360 U	390 U	--	--
Dibenzofuran	132-64-9	NA	NA	NA	µg/kg	370 U	390 U	360 U	390 U	350 U	420 U	350 U	410 U	360 U	390 U	--	--
N-Nitrosodiphenylamine	86-30-6	NA	NA	NA	µg/kg	370 U	390 U	360 U	390 U	350 U	420 U	350 U	410 U	360 U	390 U	--	--
PESTICIDES/PCBs																	
4,4'-DDE	72-55-9	3.3	1,800	120,000	µg/kg	2.1 J	0.65 JN	1.9 U	2 U	1.8 U	2.1 U	1.8 U	2.1 U	0.069 JN	2 U		
Endrin	72-20-8	14	2,200	410,000	µg/kg	1.9 U	2 U	1.9 U	2 U	1.8 U	2.1 U	1.8 U	2.1 U	1.9 U	2 U		
Endrin aldehyde	7421-93-4	NA	NA	NA	µg/kg	2.9 J	2 U	1.9 U	2 U	1.8 U	2.1 U	1.8 U	2.1 U	1.9 U	2 U		
4,4'-DDD	72-54-8	3.3	2,600	180,000	µg/kg	2.7 JN	2 U	1.9 U	2 U	1.8 U	2.1 U	1.8 U	2.1 U	1.9 U	2 U		
4,4'-DDT	50-29-3	3.3	1,700	94,000	µg/kg	6.9 JN	0.9 JN	1.9 U	2 U	1.8 U	2.1 U	1.8 U	2.1 U	1.9 U	2 U		
Aroclor 1260	1336-36-3	100	1,000	25,000	µg/kg	160	2 U	1.9 U	2 U	1.8 U	2.1 U	1.8 U	2.1 U	1.9 U	2 U		
Metals																	
Aluminum	7429-90-5	NA	NA	NA	mg/kg	9850	12100	11000	15100	10000	13900	10300	11300	10200	14800	--	--
Antimony	7440-36-0	NA	NA	NA	mg/kg	0.27 J	0.36 J	0.17 J	0.17 UJ	0.32 J	0.18 UJ	0.15 UJ	0.2 J	0.16 UJ	0.17 UJ	--	--
Arsenic	7440-38-2	13	16	16	mg/kg	5.4	6.7	4.9	5.4	6.9	8.1	4.7	8.6	6.5	4.3	--	--
Barium	7440-39-3	350	350	10,000	mg/kg	41	47.4	31	84.3	50.9	98.7	28.7	64.4	33	97.2	--	--
Beryllium	7440-41-7	7.2	14	2,700	mg/kg	0.49 J	0.59 J	0.45 J	0.95	0.58	1.2	0.41 J	0.91	0.5 J	1	--	--
Cadmium	7440-43-9	2.5	2.5	60	mg/kg	0.53 J	0.65	0.092 J	0.059 U	0.06 J	0.062 U	0.095 J	0.062 U	0.17 J	0.059 U	--	--
Calcium	7440-70-2	NA	NA	NA	mg/kg	13500	5580	17500	1360	23800	2650	31500	3370	21300	2790	--	--
Chromium	7440-47-3	30	36	6,800	mg/kg	19.4 J	19.3 J	15.8	16.7	15.6	15.1	13.9	13.6	15	15.4	--	--
Chromium VI	18540-29-9	1	22	800	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	7440-48-4	NA	NA	NA	mg/kg	11.2 J	13.3 J	11.2	13.6	12.7	15	11.2	13.5	12.4	8.8	--	--
Copper	7440-50-8	50	270	10,000	mg/kg	30.9	32.7	23.5 J	19.9 J	29.8 J	27.2 J	21.6 J	27.1 J	28.8 J	17.3 J	--	--
Iron	7439-89-6	NA	NA	NA	mg/kg	25100 J	30000 J	26800	38400	26300	42600	25000	34200	27600	28700	--	--
Lead	7439-92-1	63	400	3,900	mg/kg	35.4	25.9	10.6	11.1	11.6	8.7	11	7.5	11.2	7.7	--	--
Magnesium	7439-95-4	NA	NA	NA	mg/kg	8550	6760	7090	3710	7050	3310	13300	3570	8070	3130	--	--
Manganese	7439-96-5	1600	2000	10,000	mg/kg	517	615	647	205	523	183	614	246	599	174	--	--
Mercury	7439-97-6	0.18	0.81	6	mg/kg	0.04	0.064	0.019 J	0.028 J	0.025 J	0.035 J	0.016 J	0.039 J	0.023 J	0.034 J	--	--
Nickel	7440-02-0	30	140	10,000	mg/kg	24.8 J	27.3 J	21.6	20.7	24.1	24.6	21.4	22.9	24.2	16.6	--	--
Potassium	7440-09-7	NA	NA	NA	mg/kg	1270	1600	677	497 J	1130	533 J	673	594 J	880	453 J	--	--
Selenium	7782-49-2	3.9	36	6,800	mg/kg	0.24 U	0.25 U	0.23 U	0.25 U	0.22 U	0.26 U	0.22 U	0.26 U	0.23 U	0.25 U	--	--
Silver	7440-22-4	2	36	6,800	mg/kg	0.16 J	0.12 J	0.1 U	0.11 U	0.099 U	0.12 U	0.099 U	0.12 U	0.1 U	0.11 U	--	--
Sodium	7440-23-5	NA	NA	NA	mg/kg	57.6 J	59.2 J	50.3 J	73.3 J	64.4 J	89.4 J	67.9 J	119 J	64.2 J	128 J	--	--
Thallium	7440-28-0	NA	NA	NA	mg/kg	0.44 U	0.55 J	0.43 U	0.46 U	0.41 U	0.83 J	0.95 J	0.49 U	0.93 J	0.46 U	--	--
Vanadium	7440-62-2	NA	NA	NA	mg/kg	18.6	25.2	16.2 J	27.5 J	18.8 J	35.7 J	14.7 J	32.2 J	18.4 J	31.7 J	--	--
Zinc	7440-66-6	109	2200	10,000	mg/kg	84.5	114	71.3	48.2	68.4	59.1	73.1	52.6	93.8	40.8	--	--

J = Estimated Value
UJ = Analyte not detected; the number is the estimated analytical reporting limit.
U = Analyte not detected; the number is the analytical reporting limit.
R = Rejected during data validation
D = Diluted
ND = Not Detected
N = Presumptive Evidence; compound identification is not definitive
SB = Site Background
NS = No Standard
Concentration above NYSDEC Soil Criteria.
"--" Not detected or not analyzed (refer to Table A-2 for complete listing of all analytes and reporting limits)

a) The highest result between samples SD-SS-GW03-0-0.5 and SD-SS-GW103-0-0.5 (dup of SD-SS-GW03-0-0.5) is reported.
c) The highest result between samples SS-04-0,18 and SS-04-0,18 DUP is reported.

Soil concentration exceeds the Part 375 unrestricted soil cleanup objective
Soil concentration exceeds the Part 375 residential soil cleanup objective
Soil concentration exceeds the Part 375 industrial soil cleanup objective

Table A-1
Detected Chemicals in Mixed (Surface/Subsurface) Soil
SADVA - AOCs 1 and 7 Compared to NYSDEC Part 375 Soil Cleanup Objectives

PARAMETER	CAS NUMBER	NYSDEC PART 375 UNRESTRICTED LAND USE CRITERIA	NYSDEC PART 375 RESIDENTIAL LAND USE CRITERIA	NYSDEC PART 375 INDUSTRIAL LAND USE CRITERIA	LOCATION / SAMPLE ID: / DEPTH: / SAMPLED: / UNITS:	AOC 1 SS-01-12,18 1-1.5 01-Jul-96	AOC 1 SS-02-12,18 1-1.5 01-Jul-96	AOC 1 SS-03-12,18 1-1.5 02-Jul-96	AOC 1 SS-06-12,18 1-1.5 01-Jul-96	AOC 1 SS-04-0,18 [c] 0-1.5 02-Jul-96	AOC 1 SS-05-0,24 0-2 02-Jul-96	AOC 1 SS-01-0,24 0-2 02-Jul-96	AOC 1 SS-02-0,24 0-2 02-Jul-96	AOC 1 SS-03-0,24 0-2 02-Jul-96	AOC 1 SS-06-0,24 0-2 02-Jul-96
VOLATILES															
Acetone	67-64-1	50	100,000	1,000,000	µg/kg	6 U	2600 D	6 U	6 U	--	--	--	--	--	--
Ethylbenzene	100-41-4	1000	30,000	780,000	µg/kg	6 U	6 UJ	6 U	6 U	--	--	--	--	--	--
Toluene	108-88-3	700	100,000	1,000,000	µg/kg	6 U	6 UJ	6 U	6 U	--	--	--	--	--	--
Trichloroethene	79-01-6	470	10,000	400,000	µg/kg	6 U	6 U	6 U	6 U	--	--	--	--	--	--
Methyl Ethyl Ketone (2-Butanone)	78-93-3	120	100,000	1,000,000	µg/kg	6 U	6 U	6 U	6 U	--	--	--	--	--	--
Xylene (total)	1330-20-7	260	100,000	1,000,000	µg/kg	6 U	6 UJ	6 U	6 U	--	--	--	--	--	--
SEMIVOLATILES															
Acenaphthene	83-32-9	20,000	100,000	1,000,000	µg/kg	--	--	--	--	270 J	370 UJ	410 UJ	15 J	380 U	20 J
Acenaphthylene	208-96-8	100,000	100,000	1,000,000	µg/kg	--	--	--	--	120 J	23 J	410 UJ	410 U	380 U	29 J
Anthracene	120-12-7	100,000	100,000	1,000,000	µg/kg	--	--	--	--	490 J	20 J	410 UJ	30 J	14 J	70 J
Benzo(a)anthracene	56-55-3	1,000	1,000	11,000	µg/kg	--	--	--	--	1500 J	61 J	410 UJ	110 J	59 J	180 J
Benzo(b)fluoranthene	205-99-2	1,000	1,000	11,000	µg/kg	--	--	--	--	2100 J	100 J	410 UJ	140 J	75 J	270 J
Benzo(k)fluoranthene	207-08-9	800	1,000	110,000	µg/kg	--	--	--	--	750 J	36 J	410 UJ	53 J	28 J	84 J
Benzo(a)pyrene	50-32-8	1,000	1,000	1,100	µg/kg	--	--	--	--	1300 J	57 J	410 UJ	97 J	54 J	170 J
Benzo(g,h,i)perylene	191-24-2	100,000	100,000	1,000,000	µg/kg	--	--	--	--	470 J	14 J	410 UJ	410 U	30 J	60 J
bis(2-Ethylhexyl)phthalate	117-81-7	NA	NA	NA	µg/kg	--	--	--	--	360 UJ	370 UJ	410 UJ	410 U	380 U	560 U
Carbazole	86-74-8	NA	NA	NA	µg/kg	--	--	--	--	1300 J	370 UJ	410 UJ	410 U	380 U	370 U
Chrysene	218-01-9	1,000	1,000	110,000	µg/kg	--	--	--	--	1500 J	84 J	410 UJ	120 J	66 J	200 J
Dibenz(a,h)anthracene	53-70-3	330	330	1,100	µg/kg	--	--	--	--	130 J	370 UJ	410 UJ	410 U	6 J	370 U
Dibenzofuran	132-64-9	NA	NA	NA	µg/kg	--	--	--	--	--	--	--	--	--	--
Di-n-butylphthalate	84-74-2	NA	NA	NA	µg/kg	--	--	--	--	360 UJ	780 UJ	480 UJ	410 U	500 U	370 U
Fluoranthene	206-44-0	100,000	100,000	1,000,000	µg/kg	--	--	--	--	2800 J	86 J	410 UJ	240 J	120 J	360 J
Fluorene	86-73-7	30,000	100,000	1,000,000	µg/kg	--	--	--	--	220 J	370 UJ	410 UJ	410 U	380 U	370 U
Indeno(1,2,3-cd)pyrene	193-39-5	500	500	11,000	µg/kg	--	--	--	--	530 J	28 J	410 UJ	32 J	29 J	69 J
Naphthalene	91-20-3	12,000	100,000	1,000,000	µg/kg	--	--	--	--	410 J	5 J	410 UJ	410 U	380 U	370 U
Phenanthrene	85-01-8	100,000	100,000	1,000,000	µg/kg	--	--	--	--	1900 J	36 J	410 UJ	150 J	62 J	220 J
Pyrene	129-00-0	100,000	100,000	1,000,000	µg/kg	--	--	--	--	3100 DJ	110 J	410 UJ	200 J	110 J	330 J
2,4-Dimethylphenol	105-67-9	NA	NA	NA	µg/kg	--	--	--	--	150 J	370 UJ	410 UJ	410 U	380 U	370 U
2-Methylnaphthalene	91-57-6	NA	NA	NA	µg/kg	--	--	--	--	230 J	7 J	410 UJ	410 U	380 U	370 U
Dibenzofuran	132-64-9	NA	NA	NA	µg/kg	--	--	--	--	110 J	370 UJ	410 UJ	410 U	380 U	10 J
N-Nitrosodiphenylamine	86-30-6	NA	NA	NA	µg/kg	--	--	--	--	68 J	370 UJ	410 UJ	410 U	380 U	370 U
PESTICIDES/PCBs															
4,4'-DDE	72-55-9	3.3	1,800	120,000	µg/kg				--	--	--	--	--	--	--
Endrin	72-20-8	14	2,200	410,000	µg/kg				--	--	--	--	--	--	--
Endrin aldehyde	7421-93-4	NA	NA	NA	µg/kg				--	--	--	--	--	--	--
4,4'-DDD	72-54-8	3.3	2,600	180,000	µg/kg				--	--	--	--	--	--	--
4,4'-DDT	50-29-3	3.3	1,700	94,000	µg/kg				--	--	--	--	--	--	--
Aroclor 1260	1336-36-3	100	1,000	25,000	µg/kg				--	--	--	--	--	--	--
Metals															
Aluminum	7429-90-5	NA	NA	NA	mg/kg	--	--	--	--	--	--	--	--	--	--
Antimony	7440-36-0	NA	NA	NA	mg/kg	--	--	--	--	--	--	--	--	--	--
Arsenic	7440-38-2	13	16	16	mg/kg	--	--	--	--	--	--	--	--	--	--
Barium	7440-39-3	350	350	10,000	mg/kg	--	--	--	--	4.1	37.1	1.6	3.5	4.6	4.3
Beryllium	7440-41-7	7.2	14	2,700	mg/kg	--	--	--	--	--	--	--	--	--	--
Cadmium	7440-43-9	2.5	2.5	60	mg/kg	--	--	--	--	--	--	--	--	--	--
Calcium	7440-70-2	NA	NA	NA	mg/kg	--	--	--	--	--	--	--	--	--	--
Chromium	7440-47-3	30	36	6,800	mg/kg	--	--	--	--	337	21.4	13.2	19.2	36.1	14.1
Chromium VI	18540-29-9	1	22	800	mg/kg	--	--	--	--	350 J	0.11 UJ	0.12 UJ	0.12 UJ	0.17 J	0.12 J
Cobalt	7440-48-4	NA	NA	NA	mg/kg	--	--	--	--	--	--	--	--	--	--
Copper	7440-50-8	50	270	10,000	mg/kg	--	--	--	--	--	--	--	--	--	--
Iron	7439-89-6	NA	NA	NA	mg/kg	--	--	--	--	--	--	--	--	--	--
Lead	7439-92-1	63	400	3,900	mg/kg	--	--	--	--	--	--	--	--	--	--
Magnesium	7439-95-4	NA	NA	NA	mg/kg	--	--	--	--	--	--	--	--	--	--
Manganese	7439-96-5	1600	2000	10,000	mg/kg	--	--	--	--	--	--	--	--	--	--
Mercury	7439-97-6	0.18	0.81	6	mg/kg	--	--	--	--	--	--	--	--	--	--
Nickel	7440-02-0	30	140	10,000	mg/kg	--	--	--	--	--	--	--	--	--	--
Potassium	7440-09-7	NA	NA	NA	mg/kg	--	--	--	--	--	--	--	--	--	--
Selenium	7782-49-2	3.9	36	6,800	mg/kg	--	--	--	--	--	--	--	--	--	--
Silver	7440-22-4	2	36	6,800	mg/kg	--	--	--	--	1.9	0.47 U	0.52 U	0.52 U	0.48 U	0.47 U
Sodium	7440-23-5	NA	NA	NA	mg/kg	--	--	--	--	--	--	--	--	--	--
Thallium	7440-28-0	NA	NA	NA	mg/kg	--	--	--	--	--	--	--	--	--	--
Vanadium	7440-62-2	NA	NA	NA	mg/kg	--	--	--	--	--	--	--	--	--	--
Zinc	7440-66-6	109	2200	10,000	mg/kg	--	--	--	--	--	--	--	--	--	--

J = Estimated Value
UJ = Analyte not detected; the number is the estimated analytical reporting limit.
U = Analyte not detected; the number is the analytical reporting limit.
R = Rejected during data validation
D = Diluted
ND = Not Detected
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SB = Site Background
NS = No Standard
Concentration above NYSDEC Soil Criteria.
"--" Not detected or not analyzed (refer to Table A-2 for complete listing of all analytes and reporting limits)

a) The highest result between samples SD-SS-GW03-0-0.5 and SD-SS-GW103-0-0.5 (dup of SD-SS-GW03-0-0.5) is reported.
c) The highest result between samples SS-04-0,18 and SS-04-0,18 DUP is reported.

Soil concentration exceeds the Part 375 unrestricted soil cleanup objective
Soil concentration exceeds the Part 375 residential soil cleanup objective
Soil concentration exceeds the Part 375 industrial soil cleanup objective

TABLE A-2

Schenectady Army Depot Focused SI and Phase II Site Assessment Validated Surface Water Data - AOC1		SAMPLE ID:	AOC1-SW04	AOC1-SW06	AOC1-SW07	AOC1-SW08	AOC1-TB-1
		LAB ID:	C0G140162001	C0G140162002	C0G140162003	C0G140162004	C0G140162006
		SOURCE:	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh
		SDG:	SADVA2	SADVA2	SADVA2	SADVA2	SADVA2
		MATRIX:	WATER	WATER	WATER	WATER	WATER
		SAMPLED:	7/13/2000	7/13/2000	7/13/2000	7/13/2000	7/13/2000
		VALIDATED:	10/10/2000	10/10/2000	10/10/2000	10/10/2000	10/10/2000
CAS NO.	COMPOUND	UNITS:					
	VOLATILES						
67-64-1	Acetone	ug/L	10 U	2.5 J	2.2 J	10 U	10 U
71-43-2	Benzene	ug/L	1 U	1 U	1 U	1 U	1 U
75-27-4	Bromodichloromethane	ug/L	1 U	1 U	1 U	1 U	1 U
75-25-2	Bromoform	ug/L	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
74-83-9	Bromomethane	ug/L	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ
78-93-3	2-Butanone	ug/L	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
75-15-0	Carbon disulfide	ug/L	1 U	0.99 J	0.36 J	1 U	1 U
56-23-5	Carbon tetrachloride	ug/L	1 U	1 U	1 U	1 U	1 U
108-90-7	Chlorobenzene	ug/L	1 U	1 U	1 U	1 U	1 U
124-48-1	Dibromochloromethane	ug/L	1 U	1 U	1 U	1 U	1 U
75-00-3	Chloroethane	ug/L	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ
67-66-3	Chloroform	ug/L	1 U	1 U	1 U	1 U	1 U
74-87-3	Chloromethane	ug/L	2 U	2 U	2 U	2 U	2 U
75-34-3	1,1-Dichloroethane	ug/L	1 U	1 U	1 U	1 U	1 U
107-06-2	1,2-Dichloroethane	ug/L	1 U	1 U	1 U	1 U	1 U
75-35-4	1,1-Dichloroethene	ug/L	1 U	1 U	1 U	1 U	1 U
540-59-0	1,2-Dichloroethene (total)	ug/L	1 U	1 U	1 U	1 U	1 U
78-87-5	1,2-Dichloropropane	ug/L	1 U	1 U	1 U	1 U	1 U
10061-01-5	cis-1,3-Dichloropropene	ug/L	1 U	1 U	1 U	1 U	1 U
10061-02-6	trans-1,3-Dichloropropene	ug/L	1 U	1 U	1 U	1 U	1 U
100-41-4	Ethylbenzene	ug/L	1 U	1 U	1 U	1 U	1 U
591-78-6	2-Hexanone	ug/L	5 U	5 U	5 U	5 U	5 U
75-09-2	Methylene chloride	ug/L	2 U	2 U	2 U	2 U	2 U
108-10-1	4-Methyl-2-pentanone	ug/L	5 U	5 U	5 U	5 U	5 U
100-42-5	Styrene	ug/L	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
79-34-5	1,1,2,2-Tetrachloroethane	ug/L	1 U	1 U	1 U	1 U	1 U
127-18-4	Tetrachloroethene	ug/L	1 U	1 U	1 U	1 U	1 U
108-88-3	Toluene	ug/L	1 U	1 U	0.24 J	1 U	1 U
71-55-6	1,1,1-Trichloroethane	ug/L	1 U	1 U	1 U	1 U	1 U
79-00-5	1,1,2-Trichloroethane	ug/L	1 U	1 U	1 U	1 U	1 U
79-01-6	Trichloroethene	ug/L	1 U	1 U	1 U	1 U	1 U
75-01-4	Vinyl chloride	ug/L	2 U	2 U	2 U	2 U	2 U
1330-20-7	Xylenes (total)	ug/L	1 U	1 U	1 U	1 U	1 U

TABLE A-2

Schenectady Army Depot Focused SI and Phase II Site Assessment Validated Surface Water Data - AOC1		SAMPLE ID: LAB ID: SOURCE: SDG: MATRIX: SAMPLED: VALIDATED:	AOC1-SW04 C0G140162001 STL Pittsburgh SADVA2 WATER 7/13/2000 10/10/2000	AOC1-SW06 C0G140162002 STL Pittsburgh SADVA2 WATER 7/13/2000 10/10/2000	AOC1-SW07 C0G140162003 STL Pittsburgh SADVA2 WATER 7/13/2000 10/10/2000	AOC1-SW08 C0G140162004 STL Pittsburgh SADVA2 WATER 7/13/2000 10/10/2000	AOC1-TB-1 C0G140162006 STL Pittsburgh SADVA2 WATER 7/13/2000 10/10/2000
CAS NO.	COMPOUND	UNITS:					
	SEMIVOLATILES						
83-32-9	Acenaphthene	ug/L	10 U	10 U	10 U	10 U	
208-96-8	Acenaphthylene	ug/L	10 U	10 U	10 U	10 U	
120-12-7	Anthracene	ug/L	10 U	10 U	10 U	10 U	
56-55-3	Benzo(a)anthracene	ug/L	10 U	10 U	10 U	10 U	
50-32-8	Benzo(a)pyrene	ug/L	10 U	10 U	10 U	10 U	
205-99-2	Benzo(b)fluoranthene	ug/L	10 U	10 U	10 U	10 U	
207-08-9	Benzo(k)fluoranthene	ug/L	10 U	10 U	10 U	10 U	
191-24-2	Benzo(ghi)perylene	ug/L	10 U	10 U	10 U	10 U	
111-91-1	bis(2-Chloroethoxy)methane	ug/L	10 U	10 U	10 U	10 U	
111-44-4	bis(2-Chloroethyl) ether	ug/L	10 U	10 U	10 U	10 U	
117-81-7	bis(2-Ethylhexyl) phthalate	ug/L	16	19	10 U	73	
101-55-3	4-Bromophenyl phenyl ether	ug/L	10 U	10 U	10 U	10 U	
85-68-7	Butyl benzyl phthalate	ug/L	10 U	10 U	10 U	10 U	
86-74-8	Carbazole	ug/L	10 U	10 U	10 U	10 U	
106-47-8	4-Chloroaniline	ug/L	10 U	10 U	10 U	10 U	
59-50-7	4-Chloro-3-methylphenol	ug/L	10 U	10 U	10 U	10 U	
91-58-7	2-Chloronaphthalene	ug/L	10 U	10 U	10 U	10 U	
95-57-8	2-Chlorophenol	ug/L	10 U	10 U	10 U	10 U	
7005-72-3	4-Chlorophenyl phenyl ether	ug/L	10 U	10 U	10 U	10 U	
218-01-9	Chrysene	ug/L	10 U	10 U	10 U	10 U	
53-70-3	Dibenz(a,h)anthracene	ug/L	10 U	10 U	10 U	10 U	
132-64-9	Dibenzofuran	ug/L	10 U	10 U	10 U	10 U	
95-50-1	1,2-Dichlorobenzene	ug/L	10 U	10 U	10 U	10 U	
541-73-1	1,3-Dichlorobenzene	ug/L	10 U	10 U	10 U	10 U	
106-46-7	1,4-Dichlorobenzene	ug/L	10 U	10 U	10 U	10 U	
91-94-1	3,3'-Dichlorobenzidine	ug/L	50 U	50 U	50 U	50 U	
120-83-2	2,4-Dichlorophenol	ug/L	10 U	10 U	10 U	10 U	
84-66-2	Diethyl phthalate	ug/L	10 U	10 U	10 U	10 U	
105-67-9	2,4-Dimethylphenol	ug/L	10 U	10 U	10 U	10 U	
131-11-3	Dimethyl phthalate	ug/L	10 U	10 U	10 U	10 U	
84-74-2	Di-n-butyl phthalate	ug/L	10 U	10 U	10 U	10 U	
117-84-0	Di-n-octyl phthalate	ug/L	10 U	10 U	10 U	10 U	

TABLE A-2

Schenectady Army Depot Focused SI and Phase II Site Assessment Validated Surface Water Data - AOC1		SAMPLE ID:	AOC1-SW04	AOC1-SW06	AOC1-SW07	AOC1-SW08	AOC1-TB-1
		LAB ID:	C0G140162001	C0G140162002	C0G140162003	C0G140162004	C0G140162006
		SOURCE:	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh
		SDG:	SADVA2	SADVA2	SADVA2	SADVA2	SADVA2
		MATRIX:	WATER	WATER	WATER	WATER	WATER
		SAMPLED:	7/13/2000	7/13/2000	7/13/2000	7/13/2000	7/13/2000
		VALIDATED:	10/10/2000	10/10/2000	10/10/2000	10/10/2000	10/10/2000
CAS NO.	COMPOUND	UNITS:					
	SEMIVOLATILES CONT'D						
51-28-5	2,4-Dinitrophenol	ug/L	50 UJ	50 UJ	50 UJ	50 UJ	
534-52-1	4,6-Dinitro-2-methylphenol	ug/L	50 U	50 U	50 U	50 U	
121-14-2	2,4-Dinitrotoluene	ug/L	10 U	10 U	10 U	10 U	
606-20-2	2,6-Dinitrotoluene	ug/L	10 U	10 U	10 U	10 U	
206-44-0	Fluoranthene	ug/L	10 U	10 U	10 U	10 U	
86-73-7	Fluorene	ug/L	10 U	10 U	10 U	10 U	
118-74-1	Hexachlorobenzene	ug/L	10 U	10 U	10 U	10 U	
87-68-3	Hexachlorobutadiene	ug/L	10 U	10 U	10 U	10 U	
77-47-4	Hexachlorocyclopentadiene	ug/L	50 U	50 U	50 U	50 U	
67-72-1	Hexachloroethane	ug/L	10 U	10 U	10 U	10 U	
193-39-5	Indeno(1,2,3-cd)pyrene	ug/L	10 U	10 U	10 U	10 U	
78-59-1	Isophorone	ug/L	10 U	10 U	10 U	10 U	
91-57-6	2-Methylnaphthalene	ug/L	10 U	10 U	10 U	10 U	
95-48-7	2-Methylphenol	ug/L	10 U	10 U	10 U	10 U	
106-44-5	4-Methylphenol	ug/L	10 U	10 U	10 U	10 U	
91-20-3	Naphthalene	ug/L	10 U	10 U	10 U	10 U	
88-74-4	2-Nitroaniline	ug/L	50 UJ	50 UJ	50 UJ	50 UJ	
99-09-2	3-Nitroaniline	ug/L	50 U	50 U	50 U	50 U	
100-01-6	4-Nitroaniline	ug/L	50 U	50 U	50 U	50 U	
98-95-3	Nitrobenzene	ug/L	10 U	10 U	10 U	10 U	
88-75-5	2-Nitrophenol	ug/L	10 U	10 U	10 U	10 U	
100-02-7	4-Nitrophenol	ug/L	50 U	50 U	50 U	50 U	
621-64-7	N-Nitrosodi-n-propylamine	ug/L	10 UJ	10 UJ	10 UJ	10 UJ	
86-30-6	N-Nitrosodiphenylamine	ug/L	10 U	10 U	10 U	10 U	
108-60-1	2,2'-oxybis(1-Chloropropane)	ug/L	10 UJ	10 UJ	10 UJ	10 UJ	
87-86-5	Pentachlorophenol	ug/L	50 U	50 U	50 U	50 U	
85-01-8	Phenanthrene	ug/L	10 U	10 U	10 U	10 U	
108-95-2	Phenol	ug/L	10 U	10 U	10 U	10 U	
129-00-0	Pyrene	ug/L	10 U	10 U	10 U	10 U	
120-82-1	1,2,4-Trichlorobenzene	ug/L	10 U	10 U	10 U	10 U	
95-95-4	2,4,5-Trichlorophenol	ug/L	10 U	10 U	10 U	10 U	
88-06-2	2,4,6-Trichlorophenol	ug/L	10 U	10 U	10 U	10 U	

TABLE A-2

Schenectady Army Depot Focused SI and Phase II Site Assessment Validated Surface Water Data - AOC1		SAMPLE ID: LAB ID: SOURCE: SDG: MATRIX: SAMPLED: VALIDATED:	AOC1-SW04 C0G140162001 STL Pittsburgh SADVA2 WATER 7/13/2000 10/10/2000	AOC1-SW06 C0G140162002 STL Pittsburgh SADVA2 WATER 7/13/2000 10/10/2000	AOC1-SW07 C0G140162003 STL Pittsburgh SADVA2 WATER 7/13/2000 10/10/2000	AOC1-SW08 C0G140162004 STL Pittsburgh SADVA2 WATER 7/13/2000 10/10/2000	AOC1-TB-1 C0G140162006 STL Pittsburgh SADVA2 WATER 7/13/2000 10/10/2000
CAS NO.	COMPOUND	UNITS:					
	PESTICIDES						
319-84-6	alpha-BHC	ug/L	0.05 U	0.05 U	0.05 U	0.05 U	
319-85-7	beta-BHC	ug/L	0.05 U	0.05 U	0.05 U	0.05 U	
319-86-8	delta-BHC	ug/L	0.05 U	0.05 U	0.05 U	0.05 U	
58-89-9	gamma-BHC (Lindane)	ug/L	0.05 U	0.05 U	0.05 U	0.05 U	
76-44-8	Heptachlor	ug/L	0.05 U	0.05 U	0.05 U	0.05 U	
309-00-2	Aldrin	ug/L	0.05 U	0.05 U	0.05 U	0.05 U	
1024-57-3	Heptachlor epoxide	ug/L	0.05 U	0.05 U	0.05 U	0.05 U	
959-98-8	Endosulfan I	ug/L	0.05 U	0.05 U	0.05 U	0.05 U	
60-57-1	Dieldrin	ug/L	0.05 U	0.05 U	0.05 U	0.05 U	
72-55-9	4,4'-DDE	ug/L	0.05 U	0.05 U	0.05 U	0.05 U	
72-20-8	Endrin	ug/L	0.05 U	0.05 U	0.05 U	0.05 U	
53494-70-5	Endrin ketone	ug/L	0.05 U	0.05 U	0.05 U	0.05 U	
7421-93-4	Endrin aldehyde	ug/L	0.05 U	0.05 U	0.05 U	0.05 U	
33213-65-9	Endosulfan II	ug/L	0.05 U	0.05 U	0.05 U	0.05 U	
72-54-8	4,4'-DDD	ug/L	0.05 U	0.05 U	0.05 U	0.05 U	
1031-07-8	Endosulfan sulfate	ug/L	0.05 U	0.05 U	0.05 U	0.05 U	
50-29-3	4,4'-DDT	ug/L	0.05 U	0.05 U	0.05 U	0.05 U	
72-43-5	Methoxychlor	ug/L	0.1 U	0.1 U	0.1 U	0.1 U	
5103-71-9	alpha-Chlordane	ug/L	0.05 U	0.05 U	0.05 U	0.05 U	
5103-74-2	gamma-Chlordane	ug/L	0.05 U	0.05 U	0.05 U	0.05 U	
8001-35-2	Toxaphene	ug/L	2 U	2 U	2 U	2 U	
	PCBs						
12674-11-2	Aroclor 1016	ug/L	1 U	1 U	1 U	1 U	
11104-28-2	Aroclor 1221	ug/L	1 U	1 U	1 U	1 U	
11141-16-5	Aroclor 1232	ug/L	1 U	1 U	1 U	1 U	
53469-21-9	Aroclor 1242	ug/L	1 U	1 U	1 U	1 U	
12672-29-6	Aroclor 1248	ug/L	1 U	1 U	1 U	1 U	
11097-69-1	Aroclor 1254	ug/L	1 U	1 U	1 U	1 U	
11096-82-5	Aroclor 1260	ug/L	1 U	1 U	1 U	1 U	

TABLE A-2

Schenectady Army Depot Focused SI and Phase II Site Assessment Validated Surface Water Data - AOC1			AOC1-SW04	AOC1-SW06	AOC1-SW07	AOC1-SW08	AOC1-TB-1
		LAB ID:	C0G140162001	C0G140162002	C0G140162003	C0G140162004	C0G140162006
		SOURCE:	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh
		SDG:	SADVA2	SADVA2	SADVA2	SADVA2	SADVA2
		MATRIX:	WATER	WATER	WATER	WATER	WATER
		SAMPLED:	7/13/2000	7/13/2000	7/13/2000	7/13/2000	7/13/2000
		VALIDATED:	10/10/2000	10/10/2000	10/10/2000	10/10/2000	10/10/2000
CAS NO.	COMPOUND	UNITS:					
	METALS						
7429-90-5	Aluminum	ug/L	27.7 J	313	61.2 J	24.9 J	
7440-36-0	Antimony	ug/L	1.5 U	1.5 U	1.5 U	1.5 U	
7440-38-2	Arsenic	ug/L	2.6 U	2.6 U	2.6 U	2.6 U	
7440-39-3	Barium	ug/L	21.1 J	27.9 J	2.8 J	21.3 J	
7440-41-7	Beryllium	ug/L	0.071 U	0.071 U	0.071 U	0.09 J	
7440-43-9	Cadmium	ug/L	0.49 U	0.49 U	0.49 U	0.49 U	
7440-70-2	Calcium	ug/L	26000	30600	16800	27000	
7440-47-3	Chromium	ug/L	1 U	1.3 J	1 U	1 U	
7440-48-4	Cobalt	ug/L	3.2 U	3.2 U	3.2 U	3.2 U	
7440-50-8	Copper	ug/L	2.2 U	3.7 J	2.2 U	2.2 U	
7439-89-6	Iron	ug/L	109	734	919	101	
7439-92-1	Lead	ug/L	1.9 U	3.7	1.9 U	1.9 U	
7439-95-4	Magnesium	ug/L	17100	17300	4650 J	17700	
7439-96-5	Manganese	ug/L	98.5	320	116	96.9	
7439-97-6	Mercury	ug/L	0.047 J	0.058 J	0.045 U	0.05 J	
7440-02-0	Nickel	ug/L	6.1 U	6.1 U	6.1 U	6.1 U	
7440-09-7	Potassium	ug/L	2380 J	2530 J	558 J	2720 J	
7782-49-2	Selenium	ug/L	2.6 J	2.1 U	2.1 U	2.1 U	
7440-22-4	Silver	ug/L	0.94 U	0.94 U	0.94 U	0.94 U	
7440-23-5	Sodium	ug/L	83200	82800	1160 J	85400	
7440-28-0	Thallium	ug/L	3.9 U	3.9 U	3.9 U	3.9 U	
7440-62-2	Vanadium	ug/L	1.8 U	1.8 U	1.8 U	1.8 U	
7440-66-6	Zinc	ug/L	20.1	24.3	15.2 J	11.6 J	
	OTHER						
Q356	Hardness, as CaCO3	mg/L	158	136	56	128	

TABLE A-2

Schenectady Army Depot		SAMPLE ID:	AOC1-SD04	AOC1-SD05	AOC1-SD06	AOC1-SD07	AOC1-SD08
Focused SI and Phase II Site Assessment		LAB ID:	C0G140158001	C0G140158005	C0G140158003	C0G140158004	C0G140158002
Validated Sediment Data - AOC1		DEPTH:	0.2'	0.2'	0.2'	0.2'	0.2'
		SOURCE:	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh
		SDG:	SADVA1	SADVA1	SADVA1	SADVA1	SADVA1
		MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL
		SAMPLED:	7/13/2000	7/13/2000	7/13/2000	7/13/2000	7/13/2000
		VALIDATED:	10/4/2000	10/4/2000	10/4/2000	10/4/2000	10/4/2000
CAS NO.	COMPOUND	UNITS:					
	VOLATILES						
67-64-1	Acetone	ug/kg	7.5 J	30 U	89 UJ	5.1 J	6.6 J
71-43-2	Benzene	ug/kg	8.8 U	7.4 U	22 UJ	8.6 U	9.6 U
75-27-4	Bromodichloromethane	ug/kg	8.8 U	7.4 U	22 UJ	8.6 U	9.6 U
75-25-2	Bromoform	ug/kg	8.8 U	7.4 U	22 UJ	8.6 U	9.6 U
74-83-9	Bromomethane	ug/kg	R	R	R	R	R
78-93-3	2-Butanone	ug/kg	35 UJ	30 UJ	89 UJ	34 UJ	38 UJ
75-15-0	Carbon disulfide	ug/kg	8.8 U	7.4 U	22 UJ	8.6 U	9.6 U
56-23-5	Carbon tetrachloride	ug/kg	8.8 U	7.4 U	22 UJ	8.6 U	9.6 U
108-90-7	Chlorobenzene	ug/kg	8.8 U	7.4 U	22 UJ	8.6 U	9.6 U
124-48-1	Dibromochloromethane	ug/kg	8.8 U	7.4 U	22 UJ	8.6 U	9.6 U
75-00-3	Chloroethane	ug/kg	18 UJ	15 UJ	44 UJ	17 UJ	19 UJ
67-66-3	Chloroform	ug/kg	8.8 U	7.4 U	22 UJ	8.6 U	9.6 U
74-87-3	Chloromethane	ug/kg	18 U	15 U	44 UJ	17 U	19 U
75-34-3	1,1-Dichloroethane	ug/kg	8.8 U	7.4 U	22 UJ	8.6 U	9.6 U
107-06-2	1,2-Dichloroethane	ug/kg	8.8 U	7.4 U	22 UJ	8.6 U	9.6 U
75-35-4	1,1-Dichloroethene	ug/kg	8.8 U	7.4 U	22 UJ	8.6 U	9.6 U
540-59-0	1,2-Dichloroethene (total)	ug/kg	8.8 U	7.4 U	22 UJ	8.6 U	9.6 U
78-87-5	1,2-Dichloropropane	ug/kg	8.8 U	7.4 U	22 UJ	8.6 U	9.6 U
10061-01-5	cis-1,3-Dichloropropene	ug/kg	8.8 U	7.4 U	22 UJ	8.6 U	9.6 U
10061-02-6	trans-1,3-Dichloropropene	ug/kg	8.8 U	7.4 U	22 UJ	8.6 U	9.6 U
100-41-4	Ethylbenzene	ug/kg	8.8 U	7.4 U	22 UJ	8.6 U	9.6 U
591-78-6	2-Hexanone	ug/kg	35 UJ	30 UJ	89 UJ	34 UJ	38 UJ
75-09-2	Methylene chloride	ug/kg	8.8 U	7.4 U	22 UJ	8.6 U	9.6 U
108-10-1	4-Methyl-2-pentanone	ug/kg	35 UJ	30 UJ	89 UJ	34 UJ	38 UJ
100-42-5	Styrene	ug/kg	8.8 U	7.4 U	22 UJ	8.6 U	9.6 U
79-34-5	1,1,2,2-Tetrachloroethane	ug/kg	8.8 U	7.4 U	22 UJ	8.6 U	9.6 U
127-18-4	Tetrachloroethene	ug/kg	8.8 U	7.4 U	22 UJ	8.6 U	9.6 U
108-88-3	Toluene	ug/kg	8.8 U	7.4 U	22 UJ	8.6 U	9.6 U
71-55-6	1,1,1-Trichloroethane	ug/kg	8.8 U	7.4 U	22 UJ	8.6 U	9.6 U
79-00-5	1,1,2-Trichloroethane	ug/kg	8.8 U	7.4 U	22 UJ	8.6 U	9.6 U
79-01-6	Trichloroethene	ug/kg	8.8 U	7.4 U	22 UJ	8.6 U	9.6 U
75-01-4	Vinyl chloride	ug/kg	18 U	15 U	44 UJ	17 U	19 U
1330-20-7	Xylenes (total)	ug/kg	8.8 U	7.4 U	22 UJ	8.6 U	9.6 U

TABLE A-2

Schenectady Army Depot Focused SI and Phase II Site Assessment Validated Sediment Data - AOC1		SAMPLE ID: LAB ID: DEPTH: SOURCE: SDG: MATRIX: SAMPLED: VALIDATED:	AOC1-SD04 C0G140158001 0.2' STL Pittsburgh SADVA1 SOIL 7/13/2000 10/4/2000	AOC1-SD05 C0G140158005 0.2' STL Pittsburgh SADVA1 SOIL 7/13/2000 10/4/2000	AOC1-SD06 C0G140158003 0.2' STL Pittsburgh SADVA1 SOIL 7/13/2000 10/4/2000	AOC1-SD07 C0G140158004 0.2' STL Pittsburgh SADVA1 SOIL 7/13/2000 10/4/2000	AOC1-SD08 C0G140158002 0.2' STL Pittsburgh SADVA1 SOIL 7/13/2000 10/4/2000
CAS NO.	COMPOUND	UNITS:					
	SEMIVOLATILES						
83-32-9	Acenaphthene	ug/kg	700	490 U	1500 UJ	570 U	660
208-96-8	Acenaphthylene	ug/kg	580 U	490 U	1500 UJ	570 U	630 U
120-12-7	Anthracene	ug/kg	1200	490 U	1500 UJ	570 U	1500
56-55-3	Benzo(a)anthracene	ug/kg	2400	17 J	94 J	570 U	2400
50-32-8	Benzo(a)pyrene	ug/kg	2200	18 J	110 J	570 U	2100
205-99-2	Benzo(b)fluoranthene	ug/kg	1900	19 J	160 J	570 U	1900
207-08-9	Benzo(k)fluoranthene	ug/kg	2300	22 J	130 J	570 U	2300
191-24-2	Benzo(ghi)perylene	ug/kg	570 J	490 U	1500 UJ	570 U	500 J
111-91-1	bis(2-Chloroethoxy)methane	ug/kg	580 U	490 U	1500 UJ	570 U	630 U
111-44-4	bis(2-Chloroethyl) ether	ug/kg	580 U	490 U	1500 UJ	570 U	630 U
117-81-7	bis(2-Ethylhexyl) phthalate	ug/kg	390 J	15 J	100 J	25 J	290 J
101-55-3	4-Bromophenyl phenyl ether	ug/kg	580 U	490 U	1500 UJ	570 U	630 U
85-68-7	Butyl benzyl phthalate	ug/kg	580 U	490 U	1500 UJ	570 U	630 U
86-74-8	Carbazole	ug/kg	740	490 U	1500 UJ	570 U	690
106-47-8	4-Chloroaniline	ug/kg	580 U	490 U	1500 UJ	570 U	630 U
59-50-7	4-Chloro-3-methylphenol	ug/kg	580 U	490 U	1500 UJ	570 U	630 U
91-58-7	2-Chloronaphthalene	ug/kg	580 U	490 U	1500 UJ	570 U	630 U
95-57-8	2-Chlorophenol	ug/kg	580 U	490 U	1500 UJ	570 U	630 U
7005-72-3	4-Chlorophenyl phenyl ether	ug/kg	580 U	490 U	1500 UJ	570 U	630 U
218-01-9	Chrysene	ug/kg	2400	23 J	140 J	570 U	2300
53-70-3	Dibenz(a,h)anthracene	ug/kg	280 J	490 U	1500 UJ	570 U	260 J
132-64-9	Dibenzofuran	ug/kg	300 J	490 U	1500 UJ	570 U	310 J
95-50-1	1,2-Dichlorobenzene	ug/kg	580 U	490 U	1500 UJ	570 U	630 U
541-73-1	1,3-Dichlorobenzene	ug/kg	580 U	490 U	1500 UJ	570 U	630 U
106-46-7	1,4-Dichlorobenzene	ug/kg	580 U	490 U	1500 UJ	570 U	630 U
91-94-1	3,3'-Dichlorobenzidine	ug/kg	2800 U	2400 U	7100 UJ	2800 U	3100 U
120-83-2	2,4-Dichlorophenol	ug/kg	580 U	490 U	1500 UJ	570 U	630 U
84-66-2	Diethyl phthalate	ug/kg	580 U	490 U	1500 UJ	570 U	630 U
105-67-9	2,4-Dimethylphenol	ug/kg	580 U	490 U	1500 UJ	570 U	630 U
131-11-3	Dimethyl phthalate	ug/kg	580 U	490 U	1500 UJ	570 U	630 U
84-74-2	Di-n-butyl phthalate	ug/kg	580 U	490 U	1500 UJ	570 U	630 U
117-84-0	Di-n-octyl phthalate	ug/kg	580 U	490 U	1500 UJ	570 U	630 U

TABLE A-2

Schenectady Army Depot Focused SI and Phase II Site Assessment Validated Sediment Data - AOC1		SAMPLE ID: LAB ID: DEPTH: SOURCE: SDG: MATRIX: SAMPLED: VALIDATED:	AOC1-SD04 C0G140158001 0.2' STL Pittsburgh SADVA1 SOIL 7/13/2000 10/4/2000	AOC1-SD05 C0G140158005 0.2' STL Pittsburgh SADVA1 SOIL 7/13/2000 10/4/2000	AOC1-SD06 C0G140158003 0.2' STL Pittsburgh SADVA1 SOIL 7/13/2000 10/4/2000	AOC1-SD07 C0G140158004 0.2' STL Pittsburgh SADVA1 SOIL 7/13/2000 10/4/2000	AOC1-SD08 C0G140158002 0.2' STL Pittsburgh SADVA1 SOIL 7/13/2000 10/4/2000
CAS NO.	COMPOUND	UNITS:					
	SEMIVOLATILES CONT'D						
51-28-5	2,4-Dinitrophenol	ug/kg	2800 UJ	2400 UJ	7100 UJ	2800 UJ	3100 UJ
534-52-1	4,6-Dinitro-2-methylphenol	ug/kg	2800 U	2400 U	7100 UJ	2800 U	3100 U
121-14-2	2,4-Dinitrotoluene	ug/kg	580 U	490 U	1500 UJ	570 U	630 U
606-20-2	2,6-Dinitrotoluene	ug/kg	580 U	490 U	1500 UJ	570 U	630 U
206-44-0	Fluoranthene	ug/kg	4700	490 U	300 J	570 U	5400
86-73-7	Fluorene	ug/kg	590	490 U	1500 UJ	570 U	650
118-74-1	Hexachlorobenzene	ug/kg	580 U	490 U	1500 UJ	570 U	630 U
87-68-3	Hexachlorobutadiene	ug/kg	580 U	490 U	1500 UJ	570 U	630 U
77-47-4	Hexachlorocyclopentadiene	ug/kg	2800 U	2400 U	7100 UJ	2800 U	3100 U
67-72-1	Hexachloroethane	ug/kg	580 U	490 U	1500 UJ	570 U	630 U
193-39-5	Indeno(1,2,3-cd)pyrene	ug/kg	650	490 U	1500 UJ	570 U	580 J
78-59-1	Isophorone	ug/kg	580 U	490 U	1500 UJ	570 U	630 U
91-57-6	2-Methylnaphthalene	ug/kg	130 J	490 U	230 J	570 U	90 J
95-48-7	2-Methylphenol	ug/kg	580 U	490 U	1500 UJ	570 U	630 U
106-44-5	4-Methylphenol	ug/kg	580 U	490 U	1500 UJ	570 U	630 U
91-20-3	Naphthalene	ug/kg	300 J	490 U	190 J	570 U	150 J
88-74-4	2-Nitroaniline	ug/kg	2800 U	2400 U	7100 UJ	2800 U	3100 U
99-09-2	3-Nitroaniline	ug/kg	2800 U	2400 U	7100 UJ	2800 U	3100 U
100-01-6	4-Nitroaniline	ug/kg	2800 U	2400 U	7100 UJ	2800 U	3100 U
98-95-3	Nitrobenzene	ug/kg	580 U	490 U	1500 UJ	570 U	630 U
88-75-5	2-Nitrophenol	ug/kg	580 U	490 U	1500 UJ	570 U	630 U
100-02-7	4-Nitrophenol	ug/kg	2800 U	2400 U	7100 UJ	2800 U	3100 U
621-64-7	N-Nitrosodi-n-propylamine	ug/kg	580 U	490 U	1500 UJ	570 U	630 U
86-30-6	N-Nitrosodiphenylamine	ug/kg	580 U	490 U	1500 UJ	570 U	630 U
108-60-1	2,2'-oxybis(1-Chloropropane)	ug/kg	580 UJ	490 UJ	1500 UJ	570 UJ	630 UJ
87-86-5	Pentachlorophenol	ug/kg	2800 U	2400 U	7100 UJ	2800 U	3100 U
85-01-8	Phenanthrene	ug/kg	5200	490 U	160 J	570 U	5800
108-95-2	Phenol	ug/kg	580 U	490 U	1500 UJ	570 U	630 U
129-00-0	Pyrene	ug/kg	3500	24 J	180 J	570 U	3600
120-82-1	1,2,4-Trichlorobenzene	ug/kg	580 U	490 U	1500 UJ	570 U	630 U
95-95-4	2,4,5-Trichlorophenol	ug/kg	580 U	490 U	1500 UJ	570 U	630 U
88-06-2	2,4,6-Trichlorophenol	ug/kg	580 U	490 U	1500 UJ	570 U	630 U

TABLE A-2

Schenectady Army Depot Focused SI and Phase II Site Assessment Validated Sediment Data - AOC1		SAMPLE ID: LAB ID: DEPTH: SOURCE: SDG: MATRIX: SAMPLED: VALIDATED:	AOC1-SD04 C0G140158001 0.2' STL Pittsburgh SADVA1 SOIL 7/13/2000 10/4/2000	AOC1-SD05 C0G140158005 0.2' STL Pittsburgh SADVA1 SOIL 7/13/2000 10/4/2000	AOC1-SD06 C0G140158003 0.2' STL Pittsburgh SADVA1 SOIL 7/13/2000 10/4/2000	AOC1-SD07 C0G140158004 0.2' STL Pittsburgh SADVA1 SOIL 7/13/2000 10/4/2000	AOC1-SD08 C0G140158002 0.2' STL Pittsburgh SADVA1 SOIL 7/13/2000 10/4/2000
CAS NO.	COMPOUND	UNITS:					
	PESTICIDES						
319-84-6	alpha-BHC	ug/kg	30 U	2.5 U	150 UJ	2.9 U	33 U
319-85-7	beta-BHC	ug/kg	30 U	2.5 U	150 UJ	2.9 U	33 U
319-86-8	delta-BHC	ug/kg	30 U	2.5 U	150 UJ	2.9 U	33 U
58-89-9	gamma-BHC (Lindane)	ug/kg	30 U	2.5 U	150 UJ	2.9 U	33 U
76-44-8	Heptachlor	ug/kg	30 U	2.5 U	150 UJ	2.9 U	33 U
309-00-2	Aldrin	ug/kg	30 U	2.5 U	150 UJ	2.9 U	33 U
1024-57-3	Heptachlor epoxide	ug/kg	30 U	2.5 U	150 UJ	2.9 U	33 U
959-98-8	Endosulfan I	ug/kg	30 U	2.5 U	150 UJ	2.9 U	33 U
60-57-1	Dieldrin	ug/kg	30 U	2.5 U	150 UJ	2.9 U	33 U
72-55-9	4,4'-DDE	ug/kg	21 J	0.22 JN	540 J	18	32 J
72-20-8	Endrin	ug/kg	30 U	2.5 U	150 UJ	2.9 U	33 U
53494-70-5	Endrin ketone	ug/kg	30 U	2.5 U	150 UJ	2.9 U	33 U
7421-93-4	Endrin aldehyde	ug/kg	30 U	2.5 U	150 UJ	2.9 U	33 U
33213-65-9	Endosulfan II	ug/kg	30 U	2.5 U	150 UJ	2.9 U	33 U
72-54-8	4,4'-DDD	ug/kg	42 J	2.5 U	2400 J	2 J	54 J
1031-07-8	Endosulfan sulfate	ug/kg	30 U	2.5 U	150 UJ	2.9 U	33 U
50-29-3	4,4'-DDT	ug/kg	130	2.5 U	630 J	1.3 J	110 J
72-43-5	Methoxychlor	ug/kg	58 U	4.9 U	290 UJ	5.7 U	63 U
5103-71-9	alpha-Chlordane	ug/kg	30 U	2.5 U	150 UJ	2.9 U	33 U
5103-74-2	gamma-Chlordane	ug/kg	30 U	2.5 U	150 UJ	2.9 U	33 U
8001-35-2	Toxaphene	ug/kg	1200 U	100 U	6000 UJ	120 U	1300 U
	PCBs						
12674-11-2	Aroclor 1016	ug/kg	58 U	49 U	150 UJ	57 U	63 U
11104-28-2	Aroclor 1221	ug/kg	58 U	49 U	150 UJ	57 U	63 U
11141-16-5	Aroclor 1232	ug/kg	58 U	49 U	150 UJ	57 U	63 U
53469-21-9	Aroclor 1242	ug/kg	58 U	49 U	150 UJ	57 U	63 U
12672-29-6	Aroclor 1248	ug/kg	58 U	49 U	150 UJ	57 U	63 U
11097-69-1	Aroclor 1254	ug/kg	69	49 U	150 UJ	57 U	290
11096-82-5	Aroclor 1260	ug/kg	58 U	49 U	250 J	57 U	63 U

TABLE A-2

Schenectady Army Depot Focused SI and Phase II Site Assessment Validated Sediment Data - AOC1		SAMPLE ID: LAB ID: DEPTH: SOURCE: SDG: MATRIX: SAMPLED: VALIDATED:	AOC1-SD04 C0G140158001 0.2' STL Pittsburgh SADVA1 SOIL 7/13/2000 10/4/2000	AOC1-SD05 C0G140158005 0.2' STL Pittsburgh SADVA1 SOIL 7/13/2000 10/4/2000	AOC1-SD06 C0G140158003 0.2' STL Pittsburgh SADVA1 SOIL 7/13/2000 10/4/2000	AOC1-SD07 C0G140158004 0.2' STL Pittsburgh SADVA1 SOIL 7/13/2000 10/4/2000	AOC1-SD08 C0G140158002 0.2' STL Pittsburgh SADVA1 SOIL 7/13/2000 10/4/2000
CAS NO.	COMPOUND	UNITS:					
	METALS						
7429-90-5	Aluminum	mg/kg	15300	16400	9440 J	12600	12600
7440-36-0	Antimony	mg/kg	7.9 J	0.22 UJ	2.1 J	0.25 UJ	6.8 J
7440-38-2	Arsenic	mg/kg	9.5	2.5	9.1 J	7.6	7
7440-39-3	Barium	mg/kg	205	128	71.6 J	258	216
7440-41-7	Beryllium	mg/kg	7.6	0.89	3.2 J	0.81 J	7
7440-43-9	Cadmium	mg/kg	1.2	0.55 J	1.1 J	1.1	0.96
7440-70-2	Calcium	mg/kg	29900	5070	4850 J	2230	20200
7440-47-3	Chromium	mg/kg	359	15.3	60.3 J	16.9	193
7440-48-4	Cobalt	mg/kg	47.4	6.2 J	12.7 J	22.3	38.5
7440-50-8	Copper	mg/kg	478	17.2	298 J	24.1	491
7439-89-6	Iron	mg/kg	86800	15200	22900 J	31200	54800
7439-92-1	Lead	mg/kg	2440 J	23.1 J	442 J	16.3 J	1300 J
7439-95-4	Magnesium	mg/kg	6080	3240	4300 J	3940	3500
7439-96-5	Manganese	mg/kg	918	98	209 J	4800	553
7439-97-6	Mercury	mg/kg	0.038 J	0.083	0.11 J	0.029 J	0.036 J
7440-02-0	Nickel	mg/kg	124	17.4	47.5 J	25.1	114
7440-09-7	Potassium	mg/kg	1330	1150	1440 J	956	1230
7782-49-2	Selenium	mg/kg	0.37 U	0.65 J	1.5 J	1.8 U	0.4 U
7440-22-4	Silver	mg/kg	0.49 J	0.14 U	0.66 J	0.47 J	0.42 J
7440-23-5	Sodium	mg/kg	630 J	108 J	680 J	84.5 J	677 J
7440-28-0	Thallium	mg/kg	0.68 U	0.58	1.7 UJ	3.3 U	0.74 U
7440-62-2	Vanadium	mg/kg	97	22.8	49.4 J	25.6	89.9
7440-66-6	Zinc	mg/kg	2960	76.5	979 J	87.1	2630
	OTHER						
7440-44-0	Total Organic Carbon	mg/kg	20400	53600	98300 J	14400	22800
Q1082	Percent Solids	%	56.9	67.3	22.5	58	52.2

TABLE A-2

						AOC-3 MW-2				
Schenectady Army Depot		Sample ID:	AOC-1 GW-11R	AOC-3 MW-1	AOC-3 MW-2	AOC-3 MW-102	AOC-3 MW-3	AOC-3 MW-4-2	TRIPLANK	TRIPLANK
Focused RI		Lab Sample Id:	C1A120121001	C1A110176001	C1A110176002	C1A110176003	C1A110176004	C1A110176005	C1A110176006	C1A120121002
Validated Groundwater Data		Source:	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh
January 2001 Sampling		SDG:	SADVA22	SADVA22	SADVA22	SADVA22	SADVA22	SADVA22	SADVA22	SADVA22
SDG: SADVA22		Matrix:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
		Sampled:	1/11/2001	1/10/2001	1/10/2001	1/10/2001	1/10/2001	1/10/2001	1/10/2001	1/11/2001
		Validated:	2/11/2001	2/11/2001	2/11/2001	2/11/2001	2/11/2001	2/11/2001	2/11/2001	2/11/2001
CAS NO.	COMPOUND	UNITS:								
	VOLATILES									
67-64-1	Acetone	ug/L	4.3 J	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ
71-43-2	Benzene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
75-27-4	Bromodichloromethane	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
75-25-2	Bromoform	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
74-83-9	Bromomethane	ug/L	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ
78-93-3	2-Butanone	ug/L	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
75-15-0	Carbon disulfide	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
56-23-5	Carbon tetrachloride	ug/L	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
108-90-7	Chlorobenzene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
124-48-1	Dibromochloromethane	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
75-00-3	Chloroethane	ug/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
67-66-3	Chloroform	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
74-87-3	Chloromethane	ug/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
75-34-3	1,1-Dichloroethane	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
107-06-2	1,2-Dichloroethane	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
75-35-4	1,1-Dichloroethene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
540-59-0	1,2-Dichloroethene (total)	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
78-87-5	1,2-Dichloropropane	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
10061-01-5	cis-1,3-Dichloropropene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
10061-02-6	trans-1,3-Dichloropropene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
100-41-4	Ethylbenzene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
591-78-6	2-Hexanone	ug/L	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
75-09-2	Methylene chloride	ug/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
108-10-1	4-Methyl-2-pentanone	ug/L	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ
100-42-5	Styrene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
79-34-5	1,1,2,2-Tetrachloroethane	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
127-18-4	Tetrachloroethene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
108-88-3	Toluene	ug/L	0.3 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U
71-55-6	1,1,1-Trichloroethane	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
79-00-5	1,1,2-Trichloroethane	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
79-01-6	Trichloroethene	ug/L	1 U	1 U	2	2.1	1 U	1 U	1 U	1 U
75-01-4	Vinyl chloride	ug/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
1330-20-7	Xylenes (total)	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U

TABLE A-2

Schenectady Army Depot Focused RI Validated Groundwater Data January 2001 Sampling SDG: SADVA22						AOC-3 MW-2				
		Sample ID:	AOC-1 GW-11R	AOC-3 MW-1	AOC-3 MW-2	AOC-3 MW-102	AOC-3 MW-3	AOC-3 MW-4-2	TRIPLANK	TRIPLANK
		Lab Sample Id:	C1A120121001	C1A110176001	C1A110176002	C1A110176003	C1A110176004	C1A110176005	C1A110176006	C1A120121002
		Source:	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh
		SDG:	SADVA22	SADVA22	SADVA22	SADVA22	SADVA22	SADVA22	SADVA22	SADVA22
		Matrix:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
		Sampled:	1/11/2001	1/10/2001	1/10/2001	1/10/2001	1/10/2001	1/10/2001	1/10/2001	1/11/2001
		Validated:	2/11/2001	2/11/2001	2/11/2001	2/11/2001	2/11/2001	2/11/2001	2/11/2001	2/11/2001
CAS NO.	COMPOUND	UNITS:								
	SEMIVOLATILES									
83-32-9	Acenaphthene	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
208-96-8	Acenaphthylene	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
120-12-7	Anthracene	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
56-55-3	Benzo(a)anthracene	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
50-32-8	Benzo(a)pyrene	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
205-99-2	Benzo(b)fluoranthene	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
207-08-9	Benzo(k)fluoranthene	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
191-24-2	Benzo(ghi)perylene	ug/L	10 U	10 UJ	11 UJ	11 UJ	11 UJ	10 UJ		
111-91-1	bis(2-Chloroethoxy)methane	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
111-44-4	bis(2-Chloroethyl) ether	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
117-81-7	bis(2-Ethylhexyl) phthalate	ug/L	10 U	7 J	4.9 J	4.9 J	5.3 J	10 U		
101-55-3	4-Bromophenyl phenyl ether	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
85-68-7	Butyl benzyl phthalate	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
86-74-8	Carbazole	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
106-47-8	4-Chloroaniline	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
59-50-7	4-Chloro-3-methylphenol	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
91-58-7	2-Chloronaphthalene	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
95-57-8	2-Chlorophenol	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
7005-72-3	4-Chlorophenyl phenyl ether	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
218-01-9	Chrysene	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
53-70-3	Dibenz(a,h)anthracene	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
132-64-9	Dibenzofuran	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
95-50-1	1,2-Dichlorobenzene	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
541-73-1	1,3-Dichlorobenzene	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
106-46-7	1,4-Dichlorobenzene	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
91-94-1	3,3'-Dichlorobenzidine	ug/L	50 U	50 U	56 U	53 U	53 U	50 U		
120-83-2	2,4-Dichlorophenol	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
84-66-2	Diethyl phthalate	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
105-67-9	2,4-Dimethylphenol	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
131-11-3	Dimethyl phthalate	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
84-74-2	Di-n-butyl phthalate	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
117-84-0	Di-n-octyl phthalate	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		

TABLE A-2

Schenectady Army Depot Focused RI Validated Groundwater Data January 2001 Sampling SDG: SADVA22		Sample ID: Lab Sample Id: Source: SDG: Matrix: Sampled: Validated:	AOC-1 GW-11R C1A120121001 STL Pittsburgh SADVA22 WATER 1/11/2001 2/11/2001	AOC-3 MW-1 C1A110176001 STL Pittsburgh SADVA22 WATER 1/10/2001 2/11/2001	AOC-3 MW-2 C1A110176002 STL Pittsburgh SADVA22 WATER 1/10/2001 2/11/2001	AOC-3 MW-2 AOC-3 MW-102 C1A110176003 STL Pittsburgh SADVA22 WATER 1/10/2001 2/11/2001	AOC-3 MW-3 C1A110176004 STL Pittsburgh SADVA22 WATER 1/10/2001 2/11/2001	AOC-3 MW-4-2 C1A110176005 STL Pittsburgh SADVA22 WATER 1/10/2001 2/11/2001	TRIPLANK C1A110176006 STL Pittsburgh SADVA22 WATER 1/10/2001 2/11/2001	TRIPLANK C1A120121002 STL Pittsburgh SADVA22 WATER 1/11/2001 2/11/2001
CAS NO.	COMPOUND	UNITS:								
	SEMIVOLATILES CONT'D									
51-28-5	2,4-Dinitrophenol	ug/L	50 U	50 U	56 U	53 U	53 U	50 U		
534-52-1	4,6-Dinitro-2-methylphenol	ug/L	50 U	50 U	56 U	53 U	53 U	50 U		
121-14-2	2,4-Dinitrotoluene	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
606-20-2	2,6-Dinitrotoluene	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
206-44-0	Fluoranthene	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
86-73-7	Fluorene	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
118-74-1	Hexachlorobenzene	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
87-68-3	Hexachlorobutadiene	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
77-47-4	Hexachlorocyclopentadiene	ug/L	50 UJ	50 U	56 U	53 U	53 U	50 U		
67-72-1	Hexachloroethane	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
193-39-5	Indeno(1,2,3-cd)pyrene	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
78-59-1	Isophorone	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
91-57-6	2-Methylnaphthalene	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
95-48-7	2-Methylphenol	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
106-44-5	4-Methylphenol	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
91-20-3	Naphthalene	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
88-74-4	2-Nitroaniline	ug/L	50 U	50 UJ	56 UJ	53 UJ	53 UJ	50 UJ		
99-09-2	3-Nitroaniline	ug/L	50 U	50 U	56 U	53 U	53 U	50 U		
100-01-6	4-Nitroaniline	ug/L	50 U	50 U	56 U	53 U	53 U	50 U		
98-95-3	Nitrobenzene	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
88-75-5	2-Nitrophenol	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
100-02-7	4-Nitrophenol	ug/L	50 U	50 UJ	56 UJ	53 UJ	53 UJ	50 UJ		
621-64-7	N-Nitrosodi-n-propylamine	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
86-30-6	N-Nitrosodiphenylamine	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
108-60-1	2,2'-oxybis(1-Chloropropane)	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
87-86-5	Pentachlorophenol	ug/L	50 U	50 U	56 U	53 U	53 U	50 U		
85-01-8	Phenanthrene	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
108-95-2	Phenol	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
129-00-0	Pyrene	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
120-82-1	1,2,4-Trichlorobenzene	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
95-95-4	2,4,5-Trichlorophenol	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		
88-06-2	2,4,6-Trichlorophenol	ug/L	10 U	10 U	11 U	11 U	11 U	10 U		

TABLE A-2

						AOC-3 MW-2				
Schenectady Army Depot		Sample ID:	AOC-1 GW-11R	AOC-3 MW-1	AOC-3 MW-2	AOC-3 MW-102	AOC-3 MW-3	AOC-3 MW-4-2	TRIPLANK	TRIPLANK
Focused RI		Lab Sample Id:	C1A120121001	C1A110176001	C1A110176002	C1A110176003	C1A110176004	C1A110176005	C1A110176006	C1A120121002
Validated Groundwater Data		Source:	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh
January 2001 Sampling		SDG:	SADVA22	SADVA22	SADVA22	SADVA22	SADVA22	SADVA22	SADVA22	SADVA22
SDG: SADVA22		Matrix:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
		Sampled:	1/11/2001	1/10/2001	1/10/2001	1/10/2001	1/10/2001	1/10/2001	1/10/2001	1/11/2001
		Validated:	2/11/2001	2/11/2001	2/11/2001	2/11/2001	2/11/2001	2/11/2001	2/11/2001	2/11/2001
CAS NO.	COMPOUND	UNITS:								
	PESTICIDES									
319-84-6	alpha-BHC	ug/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U		
319-85-7	beta-BHC	ug/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U		
319-86-8	delta-BHC	ug/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U		
58-89-9	gamma-BHC (Lindane)	ug/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U		
76-44-8	Heptachlor	ug/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U		
309-00-2	Aldrin	ug/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U		
1024-57-3	Heptachlor epoxide	ug/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U		
959-98-8	Endosulfan I	ug/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U		
60-57-1	Dieldrin	ug/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U		
72-55-9	4,4'-DDE	ug/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U		
72-20-8	Endrin	ug/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U		
53494-70-5	Endrin ketone	ug/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U		
7421-93-4	Endrin aldehyde	ug/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U		
33213-65-9	Endosulfan II	ug/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U		
72-54-8	4,4'-DDD	ug/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U		
1031-07-8	Endosulfan sulfate	ug/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U		
50-29-3	4,4'-DDT	ug/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U		
72-43-5	Methoxychlor	ug/L	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U		
5103-71-9	alpha-Chlordane	ug/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U		
5103-74-2	gamma-Chlordane	ug/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U		
8001-35-2	Toxaphene	ug/L	2 U	2 U	2 U	2 U	2 U	2 U		
	PCBs									
12674-11-2	Aroclor 1016	ug/L	1 U	1 U	1 U	1 U	1 U	1 U		
11104-28-2	Aroclor 1221	ug/L	1 U	1 U	1 U	1 U	1 U	1 U		
11141-16-5	Aroclor 1232	ug/L	1 U	1 U	1 U	1 U	1 U	1 U		
53469-21-9	Aroclor 1242	ug/L	1 U	1 U	1 U	1 U	1 U	1 U		
12672-29-6	Aroclor 1248	ug/L	1 U	1 U	1 U	1 U	1 U	1 U		
11097-69-1	Aroclor 1254	ug/L	1 U	1 U	1 U	1 U	1 U	1 U		
11096-82-5	Aroclor 1260	ug/L	1 U	1 U	1 U	1 U	1 U	1 U		

TABLE A-2

Schenectady Army Depot Focused RI Validated Groundwater Data January 2001 Sampling SDG: SADVA22		Sample ID: Lab Sample Id: Source: SDG: Matrix: Sampled: Validated:	AOC-1 GW-11R C1A120121001 STL Pittsburgh SADVA22 WATER 1/11/2001 2/11/2001	AOC-3 MW-1 C1A110176001 STL Pittsburgh SADVA22 WATER 1/10/2001 2/11/2001	AOC-3 MW-2 C1A110176002 STL Pittsburgh SADVA22 WATER 1/10/2001 2/11/2001	AOC-3 MW-2 AOC-3 MW-102 C1A110176003 STL Pittsburgh SADVA22 WATER 1/10/2001 2/11/2001	AOC-3 MW-3 C1A110176004 STL Pittsburgh SADVA22 WATER 1/10/2001 2/11/2001	AOC-3 MW-4-2 C1A110176005 STL Pittsburgh SADVA22 WATER 1/10/2001 2/11/2001	TRIPLANK C1A110176006 STL Pittsburgh SADVA22 WATER 1/10/2001 2/11/2001	TRIPLANK C1A120121002 STL Pittsburgh SADVA22 WATER 1/11/2001 2/11/2001
CAS NO.	COMPOUND	UNITS:								
	METALS									
7429-90-5	Aluminum	ug/L	12800	47900	64700 J	27300 J	3080	5300		
7440-36-0	Antimony	ug/L	11.5 J	3.9 J	4.7 J	1.9 J	2.4 J	2.9 J		
7440-38-2	Arsenic	ug/L	131	23.3	31.2 J	11.8 J	2.9 J	2.6 U		
7440-39-3	Barium	ug/L	357	302	454 J	209 J	36.4 J	46.7 J		
7440-41-7	Beryllium	ug/L	0.8 J	2.5 J	3.6 J	1.5 J	0.35 J	0.24 J		
7440-43-9	Cadmium	ug/L	0.49 U	0.78 J	0.74 J	0.49 UJ	0.49 U	0.49 U		
7440-70-2	Calcium	ug/L	2810 J	46800	74900	67800	44900	53000		
7440-47-3	Chromium	ug/L	21	67.3	84.3 J	34.4 J	4 J	7.6 J		
7440-48-4	Cobalt	ug/L	5.6 J	50.4	76 J	27 J	3.2 U	3.2 U		
7440-50-8	Copper	ug/L	25.4	95.2	123 J	45.3 J	7 J	7.6 J		
7439-89-6	Iron	ug/L	12800	78300	110000 J	40300 J	3540	5360		
7439-92-1	Lead	ug/L	15.8	35.6	48.9 J	17.1 J	1.9 U	2.6 J		
7439-95-4	Magnesium	ug/L	3210 J	25200	36700	23200	10700	11300		
7439-96-5	Manganese	ug/L	120	2260	3880 J	1430 J	97	77.8		
7439-97-6	Mercury	ug/L	0.049 J	0.089 J	0.15 J	0.083 J	0.045 U	0.05 J		
7440-02-0	Nickel	ug/L	17.3 J	91.3	131 J	56.9 J	6.1 U	6.1 U		
7440-09-7	Potassium	ug/L	9060	14600	18800	10700	4230 J	3190 J		
7782-49-2	Selenium	ug/L	84.5	2.4 J	2.1 U	2.1 U	2.1 U	2.7 J		
7440-22-4	Silver	ug/L	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U		
7440-23-5	Sodium	ug/L	437000	25700	35900	35800	25800	17300		
7440-28-0	Thallium	ug/L	3.9 U	3.9 U	3.9 U	3.9 U	3.9 U	3.9 U		
7440-62-2	Vanadium	ug/L	61.7	88	121 J	53.3 J	8.6 J	9.8 J		
7440-66-6	Zinc	ug/L	21.2	227	311 J	114 J	11.1 J	16.7 J		

TABLE A-2

USACE-Schenectady Depot Validated Groundwater Analytical Data SDG: SADVA29		Sample ID: Lab Sample Id: Depth: Source: SDG: Matrix: Sampled: Validated:	SD-GW06-AOC2 C4L070288001 STL Pittsburgh SADVA29 WATER 12/6/2004 1/6/2005	SD-GW07-AOC2 C4L070288002 STL Pittsburgh SADVA29 WATER 12/6/2004 1/6/2005	SD-GW13-AOC1 C4L080148001 STL Pittsburgh SADVA29 WATER 12/7/2004 1/6/2005	TB-01 C4L070288003 STL Pittsburgh SADVA29 WATER 12/6/2004 1/6/2005	TRIP-2 C4L080148007 STL Pittsburgh SADVA29 WATER 12/7/2004 1/6/2005
CAS NO.	COMPOUND	UNITS:					
	VOLATILES						
67-64-1	Acetone	ug/L	10 U	10 U	10 U	10 U	10 U
71-43-2	Benzene	ug/L	1.5	1 U	1 U	1 U	1 U
75-27-4	Bromodichloromethane	ug/L	1 U	1 U	1 U	1 U	1 U
75-25-2	Bromoform	ug/L	1 U	1 U	1 U	1 U	1 U
74-83-9	Bromomethane	ug/L	2 U	2 U	2 U	2 U	2 U
78-93-3	2-Butanone	ug/L	10	5 U	5 U	5 U	5 U
75-15-0	Carbon disulfide	ug/L	1 U	1 U	1 U	1 U	1 U
56-23-5	Carbon tetrachloride	ug/L	1 U	1 U	1 U	1 U	1 U
108-90-7	Chlorobenzene	ug/L	1 U	1 U	1 U	1 U	1 U
124-48-1	Dibromochloromethane	ug/L	1 U	1 U	1 U	1 U	1 U
75-00-3	Chloroethane	ug/L	2 U	2 U	2 U	2 U	2 U
67-66-3	Chloroform	ug/L	1 U	1 U	1 U	1 U	1 U
74-87-3	Chloromethane	ug/L	1 U	1 U	1 U	1 U	1 U
75-34-3	1,1-Dichloroethane	ug/L	1 U	1 U	1 U	1 U	1 U
107-06-2	1,2-Dichloroethane	ug/L	1 U	1 U	1 U	1 U	1 U
75-35-4	1,1-Dichloroethene	ug/L	2 U	2 U	2 U	2 U	2 U
540-59-0	1,2-Dichloroethene (total)	ug/L	2 U	2 U	2 U	2 U	2 U
78-87-5	1,2-Dichloropropane	ug/L	1 U	1 U	1 U	1 U	1 U
10061-01-5	cis-1,3-Dichloropropene	ug/L	1 U	1 U	1 U	1 U	1 U
10061-02-6	trans-1,3-Dichloropropene	ug/L	1 U	1 U	1 U	1 U	1 U
100-41-4	Ethylbenzene	ug/L	1 U	1 U	1 U	1 U	1 U
591-78-6	2-Hexanone	ug/L	5 U	5 U	5 U	5 U	5 U
75-09-2	Methylene chloride	ug/L	2 U	2 U	2 U	2 U	2 U
108-10-1	4-Methyl-2-pentanone	ug/L	5 U	5 U	5 U	5 U	5 U
100-42-5	Styrene	ug/L	1 U	1 U	1 U	1 U	1 U
79-34-5	1,1,2,2-Tetrachloroethane	ug/L	2 U	2 U	2 U	2 U	2 U
127-18-4	Tetrachloroethene	ug/L	1 U	1 U	1 U	1 U	1 U
108-88-3	Toluene	ug/L	1.1	1 U	1 U	1 U	1 U
71-55-6	1,1,1-Trichloroethane	ug/L	1 U	1 U	1 U	1 U	1 U
79-00-5	1,1,2-Trichloroethane	ug/L	1 U	1 U	1 U	1 U	1 U
79-01-6	Trichloroethene	ug/L	1 U	1 U	1 U	1 U	1 U
75-01-4	Vinyl chloride	ug/L	1 U	1 U	1 U	1 U	1 U
1330-20-7	Xylenes (total)	ug/L	0.79 J	3 U	3 U	3 U	3 U

TABLE A-2

USACE-Schenectady Depot Validated Groundwater Analytical Data SDG: SADVA29		Sample ID:	SD-GW06-AOC2	SD-GW07-AOC2	SD-GW13-AOC1	TB-01	TRIP-2
		Lab Sample Id:	C4L070288001	C4L070288002	C4L080148001	C4L070288003	C4L080148007
		Depth:					
		Source:	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh
		SDG:	SADVA29	SADVA29	SADVA29	SADVA29	SADVA29
		Matrix:	WATER	WATER	WATER	WATER	WATER
		Sampled:	12/6/2004	12/6/2004	12/7/2004	12/6/2004	12/7/2004
		Validated:	1/6/2005	1/6/2005	1/6/2005	1/6/2005	1/6/2005
CAS NO.	COMPOUND	UNITS:					
	SEMIVOLATILES						
83-32-9	Acenaphthene	ug/L	9.8 U	9.8 U	9.8 U		
208-96-8	Acenaphthylene	ug/L	9.8 U	9.8 U	9.8 U		
120-12-7	Anthracene	ug/L	9.8 U	9.8 U	9.8 U		
56-55-3	Benzo(a)anthracene	ug/L	9.8 U	9.8 U	9.8 U		
50-32-8	Benzo(a)pyrene	ug/L	9.8 U	9.8 U	9.8 U		
205-99-2	Benzo(b)fluoranthene	ug/L	9.8 U	9.8 U	9.8 U		
207-08-9	Benzo(k)fluoranthene	ug/L	9.8 U	9.8 U	9.8 U		
191-24-2	Benzo(ghi)perylene	ug/L	9.8 U	9.8 U	9.8 U		
111-91-1	bis(2-Chloroethoxy)methane	ug/L	9.8 U	9.8 U	9.8 U		
111-44-4	bis(2-Chloroethyl) ether	ug/L	9.8 U	9.8 U	9.8 U		
117-81-7	bis(2-Ethylhexyl) phthalate	ug/L	9.8 U	9.8 U	9.8 U		
101-55-3	4-Bromophenyl phenyl ether	ug/L	9.8 U	9.8 U	9.8 U		
85-68-7	Butyl benzyl phthalate	ug/L	9.8 U	9.8 U	9.8 U		
86-74-8	Carbazole	ug/L	9.8 U	9.8 U	9.8 U		
106-47-8	4-Chloroaniline	ug/L	9.8 U	9.8 U	9.8 U		
59-50-7	4-Chloro-3-methylphenol	ug/L	9.8 U	9.8 U	9.8 U		
91-58-7	2-Chloronaphthalene	ug/L	9.8 U	9.8 U	9.8 U		
95-57-8	2-Chlorophenol	ug/L	9.8 U	9.8 U	9.8 U		
7005-72-3	4-Chlorophenyl phenyl ether	ug/L	9.8 U	9.8 U	9.8 U		
218-01-9	Chrysene	ug/L	9.8 U	9.8 U	9.8 U		
53-70-3	Dibenz(a,h)anthracene	ug/L	9.8 U	9.8 U	9.8 U		
132-64-9	Dibenzofuran	ug/L	9.8 U	9.8 U	9.8 U		
95-50-1	1,2-Dichlorobenzene	ug/L	9.8 U	9.8 U	9.8 U		
541-73-1	1,3-Dichlorobenzene	ug/L	9.8 U	9.8 U	9.8 U		
106-46-7	1,4-Dichlorobenzene	ug/L	9.8 U	9.8 U	9.8 U		
91-94-1	3,3'-Dichlorobenzidine	ug/L	49 U	49 U	49 U		
120-83-2	2,4-Dichlorophenol	ug/L	9.8 U	9.8 U	9.8 U		
84-66-2	Diethyl phthalate	ug/L	9.8 U	9.8 U	9.8 U		
105-67-9	2,4-Dimethylphenol	ug/L	15 U	15 U	15 U		
131-11-3	Dimethyl phthalate	ug/L	9.8 U	9.8 U	9.8 U		
84-74-2	Di-n-butyl phthalate	ug/L	9.8 U	9.8 U	1.1 J		
117-84-0	Di-n-octyl phthalate	ug/L	9.8 U	9.8 U	9.8 U		

TABLE A-2

USACE-Schenectady Depot Validated Groundwater Analytical Data SDG: SADVA29		Sample ID: Lab Sample Id: Depth: Source: SDG: Matrix: Sampled: Validated:	SD-GW06-AOC2 C4L070288001 STL Pittsburgh SADVA29 WATER 12/6/2004 1/6/2005	SD-GW07-AOC2 C4L070288002 STL Pittsburgh SADVA29 WATER 12/6/2004 1/6/2005	SD-GW13-AOC1 C4L080148001 STL Pittsburgh SADVA29 WATER 12/7/2004 1/6/2005	TB-01 C4L070288003 STL Pittsburgh SADVA29 WATER 12/6/2004 1/6/2005	TRIP-2 C4L080148007 STL Pittsburgh SADVA29 WATER 12/7/2004 1/6/2005
CAS NO.	COMPOUND	UNITS:					
	SEMIVOLATILES						
51-28-5	2,4-Dinitrophenol	ug/L	49 U	49 U	49 U		
534-52-1	4,6-Dinitro-2-Methylphenol	ug/L	49 U	49 U	49 U		
121-14-2	2,4-Dinitrotoluene	ug/L	9.8 U	9.8 U	9.8 U		
606-20-2	2,6-Dinitrotoluene	ug/L	9.8 U	9.8 U	9.8 U		
206-44-0	Fluoranthene	ug/L	9.8 U	9.8 U	2.5 J		
86-73-7	Fluorene	ug/L	0.13 J	9.8 U	9.8 U		
118-74-1	Hexachlorobenzene	ug/L	9.8 U	9.8 U	9.8 U		
87-68-3	Hexachlorobutadiene	ug/L	9.8 U	9.8 U	9.8 U		
77-47-4	Hexachlorocyclopentadiene	ug/L	150 U	150 U	150 U		
67-72-1	Hexachloroethane	ug/L	9.8 U	9.8 U	9.8 U		
193-39-5	Indeno(1,2,3-cd)pyrene	ug/L	9.8 U	9.8 U	9.8 U		
78-59-1	Isophorone	ug/L	9.8 U	9.8 U	9.8 U		
91-57-6	2-Methylnaphthalene	ug/L	0.87 J	9.8 U	9.8 U		
95-48-7	2-Methylphenol	ug/L	9.8 U	9.8 U	9.8 U		
106-44-5	4-Methylphenol	ug/L	9.8 U	9.8 U	9.8 U		
91-20-3	Naphthalene	ug/L	0.65 J	9.8 U	9.8 U		
88-74-4	2-Nitroaniline	ug/L	49 U	49 U	49 U		
99-09-2	3-Nitroaniline	ug/L	49 U	49 U	49 U		
100-01-6	4-Nitroaniline	ug/L	49 U	49 U	49 U		
98-95-3	Nitrobenzene	ug/L	9.8 U	9.8 U	9.8 U		
88-75-5	2-Nitrophenol	ug/L	9.8 U	9.8 U	9.8 U		
100-02-7	4-Nitrophenol	ug/L	49 U	49 U	49 U		
621-64-7	N-Nitrosodi-n-propylamine	ug/L	9.8 U	9.8 U	9.8 U		
86-30-6	N-Nitrosodiphenylamine	ug/L	9.8 U	9.8 U	9.8 U		
108-60-1	2,2'-oxybis(1-Chloropropane)	ug/L	9.8 U	9.8 U	9.8 U		
87-86-5	Pentachlorophenol	ug/L	49 U	49 U	49 U		
85-01-8	Phenanthrene	ug/L	9.8 U	9.8 U	9.8 U		
108-95-2	Phenol	ug/L	9.8 U	9.8 U	9.8 U		
129-00-0	Pyrene	ug/L	9.8 U	9.8 U	0.95 J		
120-82-1	1,2,4-Trichlorobenzene	ug/L	9.8 U	9.8 U	9.8 U		
95-95-4	2,4,5-Trichlorophenol	ug/L	9.8 U	9.8 U	9.8 U		
88-06-2	2,4,6-Trichlorophenol	ug/L	9.8 U	9.8 U	9.8 U		

TABLE A-2

USACE-Schenectady Depot Validated Groundwater Analytical Data SDG: SADVA29		Sample ID: Lab Sample Id: Depth: Source: SDG: Matrix: Sampled: Validated:	SD-GW06-AOC2 C4L070288001 STL Pittsburgh SADVA29 WATER 12/6/2004 1/6/2005	SD-GW07-AOC2 C4L070288002 STL Pittsburgh SADVA29 WATER 12/6/2004 1/6/2005	SD-GW13-AOC1 C4L080148001 STL Pittsburgh SADVA29 WATER 12/7/2004 1/6/2005	TB-01 C4L070288003 STL Pittsburgh SADVA29 WATER 12/6/2004 1/6/2005	TRIP-2 C4L080148007 STL Pittsburgh SADVA29 WATER 12/7/2004 1/6/2005
CAS NO.	COMPOUND	UNITS:					
	PESTICIDES						
319-84-6	alpha-BHC	ug/L	0.005 U	0.005 U	0.0023 J		
319-85-7	beta-BHC	ug/L	0.005 U	0.005 U	0.005 U		
319-86-8	delta-BHC	ug/L	0.005 U	0.005 U	0.005 U		
58-89-9	gamma-BHC (Lindane)	ug/L	0.005 U	0.005 U	0.0017 JN		
76-44-8	Heptachlor	ug/L	0.005 U	0.005 U	0.005 U		
309-00-2	Aldrin	ug/L	0.005 U	0.005 U	0.005 U		
1024-57-3	Heptachlor epoxide	ug/L	0.01 U	0.01 U	0.01 U		
959-98-8	Endosulfan I	ug/L	0.005 U	0.005 U	0.005 U		
60-57-1	Dieldrin	ug/L	0.01 U	0.01 U	0.01 U		
72-55-9	4,4'-DDE	ug/L	0.005 U	0.005 U	0.005 U		
72-20-8	Endrin	ug/L	0.005 U	0.005 U	0.0077 JN		
53494-70-5	Endrin Ketone	ug/L	0.005 U	0.005 U	0.0027 JN		
7421-93-4	Endrin aldehyde	ug/L	0.005 U	0.005 U	0.0019 J PG		
33213-65-9	Endosulfan II	ug/L	0.01 U	0.01 U	0.01 U		
72-54-8	4,4'-DDD	ug/L	0.005 U	0.005 U	0.027 J		
1031-07-8	Endosulfan sulfate	ug/L	0.0067 JN	0.01 U	0.01 U		
50-29-3	4,4'-DDT	ug/L	0.005 U	0.002 J	0.014 JN		
72-43-5	Methoxychlor	ug/L	0.0098 JN	0.01 U	0.01 U		
5103-71-9	alpha-Chlordane	ug/L	0.0032 JN	0.01 U	0.01 U		
5103-74-2	gamma-Chlordane	ug/L	0.01 U	0.01 U	0.01 U		
8001-35-2	Toxaphene	ug/L	0.2 U	0.2 U	0.2 U		
	PCBS						
12674-11-2	Aroclor 1016	ug/L	0.2 U	0.2 U	0.98 U		
11104-28-2	Aroclor 1221	ug/L	0.2 U	0.2 U	0.98 U		
11141-16-5	Aroclor 1232	ug/L	0.2 U	0.2 U	0.98 U		
53469-21-9	Aroclor 1242	ug/L	0.1 U	0.1 U	0.49 U		
12672-29-6	Aroclor 1248	ug/L	0.1 U	0.1 U	0.49 U		
11097-69-1	Aroclor 1254	ug/L	0.1 U	0.1 U	0.49 U		
11096-82-5	Aroclor 1260	ug/L	0.2 U	0.2 U	0.98 U		

TABLE A-2

USACE-Schenectady Depot Validated Groundwater Analytical Data SDG: SADVA29		Sample ID: Lab Sample Id: Depth: Source: SDG: Matrix: Sampled: Validated:	SD-GW06-AOC2 C4L070288001 STL Pittsburgh SADVA29 WATER 12/6/2004 1/6/2005	SD-GW07-AOC2 C4L070288002 STL Pittsburgh SADVA29 WATER 12/6/2004 1/6/2005	SD-GW13-AOC1 C4L080148001 STL Pittsburgh SADVA29 WATER 12/7/2004 1/6/2005	TB-01 C4L070288003 STL Pittsburgh SADVA29 WATER 12/6/2004 1/6/2005	TRIP-2 C4L080148007 STL Pittsburgh SADVA29 WATER 12/7/2004 1/6/2005
CAS NO.	COMPOUND	UNITS:					
	METALS						
7429-90-5(T)	Aluminum	ug/L	38.7 J	230	8 U		
7440-36-0(T)	Antimony	ug/L	3.2 U	3.2 U	3.2 U		
7440-38-2(T)	Arsenic	ug/L	3.3 U	3.3 U	3.3 U		
7440-39-3(T)	Barium	ug/L	102 J	12.9 J	36.5 J		
7440-41-7(T)	Beryllium	ug/L	0.42 U	0.42 U	0.71 J		
7440-43-9(T)	Cadmium	ug/L	0.7 U	0.7 U	0.7 U		
7440-70-2(T)	Calcium	ug/L	108000	459000	441000		
7440-47-3(T)	Chromium	ug/L	0.93 U	0.93 U	7		
7440-48-4(T)	Cobalt	ug/L	0.72 J	0.53 U	0.53 U		
7440-50-8(T)	Copper	ug/L	1.2 U	1.2 U	1.2 J		
7439-89-6(T)	Iron	ug/L	50100	1870	18 U		
7439-92-1(T)	Lead	ug/L	1.6 U	1.6 U	1.6 U		
7439-95-4(T)	Magnesium	ug/L	66500	272000	168000		
7439-96-5(T)	Manganese	ug/L	839	1440	90.2		
7439-97-6(T)	Mercury	ug/L	R	R	R		
7440-02-0(T)	Nickel	ug/L	2.6 J	1.2 J	2.4 J		
7440-09-7(T)	Potassium	ug/L	1990 J	13000	47800		
7782-49-2(T)	Selenium	ug/L	2.6 U	2.6 U	8.4 J		
7440-22-4(T)	Silver	ug/L	0.3 U	0.33 J	0.3 U		
7440-23-5(T)	Sodium	ug/L	65500	41100	74600		
7440-28-0(T)	Thallium	ug/L	4.6 U	4.6 U	4.6 U		
7440-62-2(T)	Vanadium	ug/L	1.7 J	1 U	4.9 J		
7440-66-6(T)	Zinc	ug/L	2.1 J	1.7 U	30.6		
	OTHER						
(FPHSU)	pH	No Units					

TABLE A-2

USACE-Schenectady Depot Validated Soil Analytical Data SDG: SADVA28		Sample ID: Lab Sample Id: Depth: Source: SDG: Matrix: Sampled: Validated:	SD-GW12C AOC1 C4K240314001 6-8' STL Pittsburgh SADVA28 SOIL 11/23/2004 1/5/2005	SD-GW14DE AOC1 C4K200145001 6-10' STL Pittsburgh SADVA28 SOIL 11/19/2004 1/5/2005	SD-TP25AOC2 C4K180240001 STL Pittsburgh SADVA28 SOIL 11/17/2004 1/5/2005	SD-TP31AOC2 C4K180240002 STL Pittsburgh SADVA28 SOIL 11/17/2004 1/5/2005
CAS NO.	COMPOUND	UNITS:				
	VOLATILES					
67-64-1	Acetone	ug/kg	22 UJ	21 UJ	27 UJ	130 UJ
71-43-2	Benzene	ug/kg	5.5 U	5.3 U	22	180
75-27-4	Bromodichloromethane	ug/kg	5.5 U	5.3 U	6.9 U	33 U
75-25-2	Bromoform	ug/kg	5.5 U	5.3 U	6.9 U	33 U
74-83-9	Bromomethane	ug/kg	5.5 U	5.3 U	6.9 U	200
78-93-3	2-Butanone	ug/kg	5.5 U	5.3 U	6.9 U	33 U
75-15-0	Carbon disulfide	ug/kg	5.5 U	5.3 U	6.9 U	33 U
56-23-5	Carbon tetrachloride	ug/kg	5.5 U	5.3 U	6.9 U	33 U
108-90-7	Chlorobenzene	ug/kg	5.5 U	5.3 U	6.9 U	33 U
124-48-1	Dibromochloromethane	ug/kg	5.5 U	5.3 U	6.9 U	33 U
75-00-3	Chloroethane	ug/kg	5.5 U	5.3 U	6.9 U	33 U
67-66-3	Chloroform	ug/kg	5.5 U	5.3 U	6.9 U	33 U
74-87-3	Chloromethane	ug/kg	5.5 U	5.3 U	6.9 U	33 U
75-34-3	1,1-Dichloroethane	ug/kg	5.5 U	5.3 U	6.9 U	33 U
107-06-2	1,2-Dichloroethane	ug/kg	5.5 U	5.3 U	6.9 U	33 U
75-35-4	1,1-Dichloroethene	ug/kg	5.5 U	5.3 U	6.9 U	33 U
540-59-0	1,2-Dichloroethene (total)	ug/kg	5.5 U	5.3 U	6.9 U	33 U
78-87-5	1,2-Dichloropropane	ug/kg	5.5 U	5.3 U	6.9 U	33 U
10061-01-5	cis-1,3-Dichloropropene	ug/kg	5.5 U	5.3 U	6.9 U	33 U
10061-02-6	trans-1,3-Dichloropropene	ug/kg	5.5 U	5.3 U	6.9 U	33 U
100-41-4	Ethylbenzene	ug/kg	5.5 U	5.3 U	8.7	4100
591-78-6	2-Hexanone	ug/kg	5.5 U	5.3 U	6.9 U	33 U
75-09-2	Methylene chloride	ug/kg	5.5 U	5.3 U	6.9 U	33 U
108-10-1	4-Methyl-2-pentanone	ug/kg	5.5 U	5.3 U	6.9 U	33 U
100-42-5	Styrene	ug/kg	5.5 U	5.3 U	6.9 U	33 U
79-34-5	1,1,2,2-Tetrachloroethane	ug/kg	5.5 U	5.3 U	6.9 U	33 U
127-18-4	Tetrachloroethene	ug/kg	5.5 U	5.3 U	6.9 U	33 U
108-88-3	Toluene	ug/kg	5.5 U	5.3 U	55	2000
71-55-6	1,1,1-Trichloroethane	ug/kg	5.5 U	5.3 U	6.9 U	33 U
79-00-5	1,1,2-Trichloroethane	ug/kg	5.5 U	5.3 U	6.9 U	33 U
79-01-6	Trichloroethene	ug/kg	5.5 U	5.3 U	6.9 U	33 U
75-01-4	Vinyl chloride	ug/kg	5.5 U	5.3 U	6.9 U	33 U
1330-20-7	Xylenes (total)	ug/kg	16 U	16 U	64	81000 J

TABLE A-2

USACE-Schenectady Depot Validated Soil Analytical Data SDG: SADVA28		Sample ID: Lab Sample Id: Depth: Source: SDG: Matrix: Sampled: Validated:	SD-GW12C AOC1 C4K240314001 6-8' STL Pittsburgh SADVA28 SOIL 11/23/2004 1/5/2005	SD-GW14DE AOC1 C4K200145001 6-10' STL Pittsburgh SADVA28 SOIL 11/19/2004 1/5/2005	SD-TP25AOC2 C4K180240001 STL Pittsburgh SADVA28 SOIL 11/17/2004 1/5/2005	SD-TP31AOC2 C4K180240002 STL Pittsburgh SADVA28 SOIL 11/17/2004 1/5/2005
CAS NO.	COMPOUND	UNITS:				
	SEMIVOLATILES					
83-32-9	Acenaphthene	ug/kg	360 U	350 U	450 U	430 U
208-96-8	Acenaphthylene	ug/kg	360 U	350 U	450 U	430 U
120-12-7	Anthracene	ug/kg	360 U	350 U	450 U	430 U
56-55-3	Benzo(a)anthracene	ug/kg	360 U	350 U	450 U	430 U
50-32-8	Benzo(a)pyrene	ug/kg	360 U	350 U	450 U	430 U
205-99-2	Benzo(b)fluoranthene	ug/kg	360 U	350 U	450 U	430 U
207-08-9	Benzo(k)fluoranthene	ug/kg	360 U	350 U	450 U	430 U
191-24-2	Benzo(ghi)perylene	ug/kg	360 U	350 U	450 U	430 U
111-91-1	bis(2-Chloroethoxy)methane	ug/kg	360 U	350 U	450 U	430 U
111-44-4	bis(2-Chloroethyl) ether	ug/kg	360 U	350 U	450 U	430 U
117-81-7	bis(2-Ethylhexyl) phthalate	ug/kg	360 U	74 J	450 U	430 U
101-55-3	4-Bromophenyl phenyl ether	ug/kg	360 U	350 U	450 U	430 U
85-68-7	Butyl benzyl phthalate	ug/kg	360 U	350 U	450 U	430 U
86-74-8	Carbazole	ug/kg	360 U	350 U	450 U	430 U
106-47-8	4-Chloroaniline	ug/kg	360 U	350 U	450 U	430 U
59-50-7	4-Chloro-3-methylphenol	ug/kg	360 U	350 U	450 U	430 U
91-58-7	2-Chloronaphthalene	ug/kg	360 U	350 U	450 U	430 U
95-57-8	2-Chlorophenol	ug/kg	360 U	350 U	450 U	430 U
7005-72-3	4-Chlorophenyl phenyl ether	ug/kg	360 U	350 U	450 U	430 U
218-01-9	Chrysene	ug/kg	360 U	350 U	450 U	430 U
53-70-3	Dibenz(a,h)anthracene	ug/kg	360 U	350 U	450 U	430 U
132-64-9	Dibenzofuran	ug/kg	360 U	350 U	450 U	430 U
95-50-1	1,2-Dichlorobenzene	ug/kg	360 U	350 U	450 U	430 U
541-73-1	1,3-Dichlorobenzene	ug/kg	360 U	350 U	450 U	430 U
106-46-7	1,4-Dichlorobenzene	ug/kg	360 U	350 U	450 U	430 U
91-94-1	3,3'-Dichlorobenzidine	ug/kg	1700 U	1700 U	2200 U	2100 U
120-83-2	2,4-Dichlorophenol	ug/kg	360 U	350 U	450 U	430 U
84-66-2	Diethyl phthalate	ug/kg	360 U	350 U	450 U	430 U
105-67-9	2,4-Dimethylphenol	ug/kg	360 U	350 U	450 U	430 U
131-11-3	Dimethyl phthalate	ug/kg	360 U	350 U	450 U	430 U
84-74-2	Di-n-butyl phthalate	ug/kg	360 U	350 U	450 U	430 U
117-84-0	Di-n-octyl phthalate	ug/kg	360 U	350 U	450 U	430 U

TABLE A-2

USACE-Schenectady Depot Validated Soil Analytical Data SDG: SADVA28		Sample ID:	SD-GW12C AOC1	SD-GW14DE AOC1	SD-TP25AOC2	SD-TP31AOC2
		Lab Sample Id:	C4K240314001	C4K200145001	C4K180240001	C4K180240002
		Depth:	6-8'	6-10'		
		Source:	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh
		SDG:	SADVA28	SADVA28	SADVA28	SADVA28
		Matrix:	SOIL	SOIL	SOIL	SOIL
		Sampled:	11/23/2004	11/19/2004	11/17/2004	11/17/2004
		Validated:	1/5/2005	1/5/2005	1/5/2005	1/5/2005
CAS NO.	COMPOUND	UNITS:				
	SEMIVOLATILES					
51-28-5	2,4-Dinitrophenol	ug/kg	1700 UJ	1700 U	2200 U	2100 U
534-52-1	4,6-Dinitro-2-Methylphenol	ug/kg	1700 U	1700 U	2200 U	2100 U
121-14-2	2,4-Dinitrotoluene	ug/kg	360 U	350 U	450 U	430 U
606-20-2	2,6-Dinitrotoluene	ug/kg	360 U	350 U	450 U	430 U
206-44-0	Fluoranthene	ug/kg	360 U	350 U	450 U	430 U
86-73-7	Fluorene	ug/kg	360 U	350 U	450 U	430 U
118-74-1	Hexachlorobenzene	ug/kg	360 U	350 U	450 U	430 U
87-68-3	Hexachlorobutadiene	ug/kg	360 U	350 U	450 U	430 U
77-47-4	Hexachlorocyclopentadiene	ug/kg	1700 U	1700 U	2200 U	2100 U
67-72-1	Hexachloroethane	ug/kg	360 U	350 U	450 U	430 U
193-39-5	Indeno(1,2,3-cd)pyrene	ug/kg	360 U	350 U	450 U	430 U
78-59-1	Isophorone	ug/kg	360 U	350 U	450 U	430 U
91-57-6	2-Methylnaphthalene	ug/kg	360 U	350 U	450 U	780
95-48-7	2-Methylphenol	ug/kg	360 U	350 U	450 U	430 U
106-44-5	4-Methylphenol	ug/kg	360 U	350 U	450 U	430 U
91-20-3	Naphthalene	ug/kg	360 U	350 U	450 U	2300
88-74-4	2-Nitroaniline	ug/kg	1700 U	1700 U	2200 U	2100 U
99-09-2	3-Nitroaniline	ug/kg	1700 U	1700 U	2200 U	2100 U
100-01-6	4-Nitroaniline	ug/kg	1700 U	1700 U	2200 U	2100 U
98-95-3	Nitrobenzene	ug/kg	360 U	350 U	450 U	430 U
88-75-5	2-Nitrophenol	ug/kg	360 U	350 U	450 U	430 U
100-02-7	4-Nitrophenol	ug/kg	1700 U	1700 U	2200 U	2100 U
621-64-7	N-Nitrosodi-n-propylamine	ug/kg	360 U	350 U	450 U	430 U
86-30-6	N-Nitrosodiphenylamine	ug/kg	360 U	350 U	450 U	430 U
108-60-1	2,2'-oxybis(1-Chloropropane)	ug/kg	360 U	350 U	450 U	430 U
87-86-5	Pentachlorophenol	ug/kg	1700 U	1700 U	2200 U	2100 U
85-01-8	Phenanthrene	ug/kg	360 U	350 U	450 U	430 U
108-95-2	Phenol	ug/kg	360 U	350 U	450 U	430 U
129-00-0	Pyrene	ug/kg	360 U	350 U	450 U	430 U
120-82-1	1,2,4-Trichlorobenzene	ug/kg	360 U	350 U	450 U	430 U
95-95-4	2,4,5-Trichlorophenol	ug/kg	360 U	350 U	450 U	430 U
88-06-2	2,4,6-Trichlorophenol	ug/kg	360 U	350 U	450 U	430 U

TABLE A-2

USACE-Schenectady Depot Validated Soil Analytical Data SDG: SADVA28		Sample ID:	SD-GW12C AOC1	SD-GW14DE AOC1	SD-TP25AOC2	SD-TP31AOC2
		Lab Sample Id:	C4K240314001	C4K200145001	C4K180240001	C4K180240002
		Depth:	6-8'	6-10'		
		Source:	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh
		SDG:	SADVA28	SADVA28	SADVA28	SADVA28
		Matrix:	SOIL	SOIL	SOIL	SOIL
		Sampled:	11/23/2004	11/19/2004	11/17/2004	11/17/2004
		Validated:	1/5/2005	1/5/2005	1/5/2005	1/5/2005
CAS NO.	COMPOUND	UNITS:				
	PESTICIDES					
319-84-6	alpha-BHC	ug/kg	1.9 U	1.8 U	2.3 U	2.2 U
319-85-7	beta-BHC	ug/kg	1.9 U	1.8 U	2.3 U	2.2 U
319-86-8	delta-BHC	ug/kg	1.9 UJ	1.8 UJ	2.3 UJ	2.2 UJ
58-89-9	gamma-BHC (Lindane)	ug/kg	1.9 U	1.8 U	2.3 U	2.2 U
76-44-8	Heptachlor	ug/kg	1.9 U	1.8 U	2.3 U	2.2 U
309-00-2	Aldrin	ug/kg	1.9 U	1.8 U	2.3 U	2.2 U
1024-57-3	Heptachlor epoxide	ug/kg	1.9 U	1.8 U	2.3 U	2.2 U
959-98-8	Endosulfan I	ug/kg	1.9 U	1.8 U	2.3 U	2.2 U
60-57-1	Dieldrin	ug/kg	1.9 U	1.8 U	2.3 U	2.2 U
72-55-9	4,4'-DDE	ug/kg	1.9 U	1.8 U	1.6 J	2.2 U
72-20-8	Endrin	ug/kg	1.9 U	1.8 U	2.3 U	0.24 JN
53494-70-5	Endrin Ketone	ug/kg	1.9 U	1.8 U	0.99 JN	2.2 U
7421-93-4	Endrin aldehyde	ug/kg	1.9 U	1.8 U	2.3 U	2.2 U
33213-65-9	Endosulfan II	ug/kg	1.9 U	1.8 U	2.3 U	2.2 U
72-54-8	4,4'-DDD	ug/kg	1.9 U	1.8 U	1.6 J	2.2 U
1031-07-8	Endosulfan sulfate	ug/kg	1.9 U	1.8 U	2.3 U	2.2 U
50-29-3	4,4'-DDT	ug/kg	1.9 U	1.8 U	1.2 JN	0.35 JN
72-43-5	Methoxychlor	ug/kg	3.6 U	3.5 U	4.6 JN	4.3 U
5103-71-9	alpha-Chlordane	ug/kg	1.9 U	1.8 U	2.3 U	2.2 U
5103-74-2	gamma-Chlordane	ug/kg	1.9 U	1.8 U	2.3 U	2.2 U
8001-35-2	Toxaphene	ug/kg	73 U	71 U	92 U	88 U
	PCBS					
12674-11-2	Aroclor 1016	ug/kg	110 U	110 U	140 U	130 U
11104-28-2	Aroclor 1221	ug/kg	55 U	53 U	69 U	66 U
11141-16-5	Aroclor 1232	ug/kg	55 U	53 U	69 U	66 U
53469-21-9	Aroclor 1242	ug/kg	55 U	53 U	69 U	66 U
12672-29-6	Aroclor 1248	ug/kg	55 U	53 U	69 U	66 U
11097-69-1	Aroclor 1254	ug/kg	36 U	35 U	45 U	43 U
11096-82-5	Aroclor 1260	ug/kg	36 U	35 U	45 U	43 U

TABLE A-2

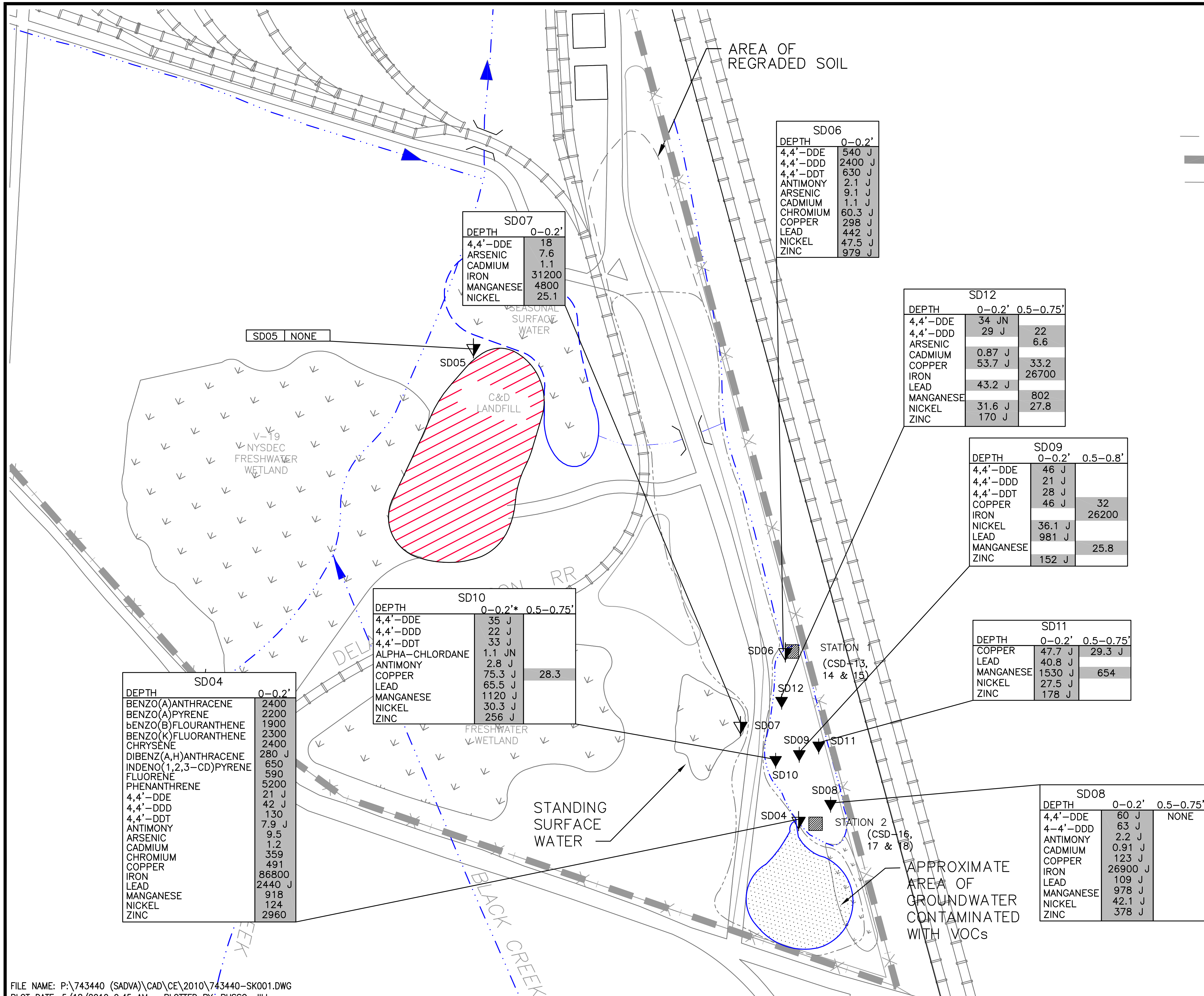
USACE-Schenectady Depot Validated Soil Analytical Data SDG: SADVA28		Sample ID: Lab Sample Id: Depth: Source: SDG: Matrix: Sampled: Validated:	SD-GW12C AOC1 C4K240314001 6-8' STL Pittsburgh SADVA28 SOIL 11/23/2004 1/5/2005	SD-GW14DE AOC1 C4K200145001 6-10' STL Pittsburgh SADVA28 SOIL 11/19/2004 1/5/2005	SD-TP25AOC2 C4K180240001 STL Pittsburgh SADVA28 SOIL 11/17/2004 1/5/2005	SD-TP31AOC2 C4K180240002 STL Pittsburgh SADVA28 SOIL 11/17/2004 1/5/2005
CAS NO.	COMPOUND	UNITS:				
	METALS					
7429-90-5(T)	Aluminum	mg/kg	10700	10300	14200	16800
7440-36-0(T)	Antimony	mg/kg	0.35 UJ	0.34 UJ	0.44 UJ	0.42 UJ
7440-38-2(T)	Arsenic	mg/kg	7.7	5.8	6.1	7.8
7440-39-3(T)	Barium	mg/kg	140 J	60 J	95.2 J	81.2 J
7440-41-7(T)	Beryllium	mg/kg	0.81	0.82	1.1	1.2
7440-43-9(T)	Cadmium	mg/kg	0.33 J	0.31 J	0.35 J	0.4 J
7440-70-2(T)	Calcium	mg/kg	18500 J	21500 J	2400 J	2590 J
7440-47-3(T)	Chromium	mg/kg	15.8	15.2	20	24.3
7440-48-4(T)	Cobalt	mg/kg	11	10.1	11.9	15.9
7440-50-8(T)	Copper	mg/kg	27.7	27.3	31	41.6
7439-89-6(T)	Iron	mg/kg	24600	24800	29600	32400
7439-92-1(T)	Lead	mg/kg	12.8 J	9.8 J	13.5 J	25 J
7439-95-4(T)	Magnesium	mg/kg	8470	8570	5150	6280
7439-96-5(T)	Manganese	mg/kg	477	483	167	669
7439-97-6(T)	Mercury	mg/kg	0.023 J	0.014 J	0.02 J	0.051
7440-02-0(T)	Nickel	mg/kg	24.6 J	23.8 J	31.1 J	32.4 J
7440-09-7(T)	Potassium	mg/kg	1910	1850	1930	1750
7782-49-2(T)	Selenium	mg/kg	1 J	0.94 J	1.6	1.3
7440-22-4(T)	Silver	mg/kg	0.13 J	0.12 J	0.13 J	0.13 J
7440-23-5(T)	Sodium	mg/kg	153 J	133 J	128 J	154 J
7440-28-0(T)	Thallium	mg/kg	0.5 U	0.48 U	0.63 U	0.6 U
7440-62-2(T)	Vanadium	mg/kg	20.5	20.3	29.4	30
7440-66-6(T)	Zinc	mg/kg	53.3 J	53.5 J	109 J	83.9 J
	OTHER					
Q1082	PERCENT SOLIDS	%	91.6	94.3	72.9	76.3

TABLE A-2

USACE-Schenectady Depot Validated Groundwater Analytical Data SDG: SADVA30								Dup of AMW-4	
		Sample ID:	ACE-2	AMW-1	AMW-2	AMW-3	AMW-4	AMW-104	GW-01
		Lab Sample Id:	C6F160136007	C6F160136008	C6F160136006	C6F160136003	C6F160136001	C6F160136002	C6F170124001
		Source:	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh
		SDG:	SADVA30	SADVA30	SADVA30	SADVA30	SADVA30	SADVA30	SADVA30
		Matrix:	WATER	WATER	WATER	WATER	WATER	WATER	WATER
		Sampled:	6/15/2006	6/15/2006	6/15/2006	6/14/2006	6/14/2006	6/14/2006	6/16/2006
		Validated:	7/20/2006	7/20/2006	7/20/2006	7/20/2006	7/20/2006	7/20/2006	7/20/2006
CAS NO.	COMPOUND	UNITS:							
	VOLATILES								
67-64-1	Acetone	ug/L	100 U	15 U	5 U	5 U	5 U	5 U	5 U
124-48-1	Dibromochloromethane	ug/L	20 U	3 U	1 U	1 U	1 U	1 U	1 U
75-00-3	Chloroethane	ug/L	20 U	3 U	1 U	1 U	1 U	1 U	1 U
67-66-3	Chloroform	ug/L	20 U	3 U	1 U	1 U	1 U	1 U	1 U
74-87-3	Chloromethane	ug/L	20 U	3 U	1 U	1 U	1 U	1 U	1 U
75-34-3	1,1-Dichloroethane	ug/L	20 U	3 U	1 U	1 U	1 U	1 U	1 U
107-06-2	1,2-Dichloroethane	ug/L	20 U	1.4 J	1 U	1 U	1 U	1 U	1 U
75-35-4	1,1-Dichloroethene	ug/L	20 U	3 U	1 U	1 U	1 U	1 U	1 U
540-59-0	1,2-Dichloroethene (total)	ug/L	530	78	1 U	1 U	1 U	1 U	1 U
78-87-5	1,2-Dichloropropane	ug/L	20 U	3 U	1 U	1 U	1 U	1 U	1 U
10061-01-5	cis-1,3-Dichloropropene	ug/L	20 U	3 U	1 U	1 U	1 U	1 U	1 U
71-43-2	Benzene	ug/L	20 U	3 U	1 U	1 U	0.28 J	0.81 J	1 U
10061-02-6	trans-1,3-Dichloropropene	ug/L	20 U	3 U	1 U	1 U	1 U	1 U	1 U
100-41-4	Ethylbenzene	ug/L	20 U	3 U	1 U	1 U	1 U	1 U	1 U
591-78-6	2-Hexanone	ug/L	100 U	15 U	5 U	5 U	5 U	5 U	5 U
75-09-2	Methylene chloride	ug/L	20 UJ	3 UJ	1.8 UJ	1 UJ	1.5 UJ	1 UJ	1 UJ
108-10-1	4-Methyl-2-pentanone	ug/L	100 U	15 U	5 U	5 U	5 U	5 U	5 U
100-42-5	Styrene	ug/L	20 U	3 U	1 U	1 U	1 U	1 U	1 U
79-34-5	1,1,2,2-Tetrachloroethane	ug/L	20 U	3 U	1 U	1 U	1 U	1 U	1 U
127-18-4	Tetrachloroethene	ug/L	20 U	3 U	1 U	1 U	1 U	1 U	1 U
108-88-3	Toluene	ug/L	20 U	3 U	0.28 J	1 U	0.23 J	1 U	1 U
71-55-6	1,1,1-Trichloroethane	ug/L	20 U	3 U	1 U	1 U	1 U	1 U	1 U
75-27-4	Bromodichloromethane	ug/L	20 U	3 U	1 U	1 U	1 U	1 U	1 U
79-00-5	1,1,2-Trichloroethane	ug/L	20 U	3 U	1 U	1 U	1 U	1 U	1 U
79-01-6	Trichloroethene	ug/L	44	2.5 J	1 U	0.26 J	1 U	0.32 J	1 U
75-01-4	Vinyl chloride	ug/L	160	21	1 U	1 U	1 J	3.4 J	1 U
1330-20-7	Xylenes (total)	ug/L	60 U	9 U	3 U	3 U	3 U	3 U	3 U
75-25-2	Bromoform	ug/L	20 U	3 U	1 U	1 U	1 U	1 U	1 U
74-83-9	Bromomethane	ug/L	20 U	3 U	1 U	1 U	1 U	1 U	1 U
78-93-3	2-Butanone	ug/L	100 U	15 U	2.3 J	5 U	2 J	5 U	5 U
75-15-0	Carbon disulfide	ug/L	20 U	3 U	1 U	1 U	1 U	1 U	1 U
56-23-5	Carbon tetrachloride	ug/L	20 U	3 U	1 U	1 U	1 U	1 U	1 U
108-90-7	Chlorobenzene	ug/L	20 U	3 U	1 U	1 U	1 U	1 U	1 U
	OTHER								
Q18	Total Alkalinity	mg/L	405	429					
(CHLOR)	Chloride	mg/L	292	45.1					
74-84-0	Ethane	ug/L	6	1.5					
74-85-1	Ethene	ug/L	12	1.9					
74-82-8	Methane	ug/L	800	240					
(N3)	Nitrate as N	mg/L	0.05 U	0.05 U					
(SULFA)	Sulfate	mg/L	50.1	141					
Q608	Total Sulfide	mg/L	3 U	3 U					
7440-44-0	TOC	mg/L	3.4	1.9					

TABLE A-2

USACE-Schenectady Depot		Sample ID:	GW-03	GW-12	GW-13	GW-14	MW-2B	TRIP BLANK	TRIP BLANK#2
Validated Groundwater Analytical Data		Lab Sample Id:	C6F170124002	C6F160136004	C6F170124004	C6F170124003	C6F160136009	C6F160136005	C6F170124005
SDG: SADVA30		Source:	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh
		SDG:	SADVA30	SADVA30	SADVA30	SADVA30	SADVA30	SADVA30	SADVA30
		Matrix:	WATER	WATER	WATER	WATER	WATER	WATER	WATER
		Sampled:	6/16/2006	6/14/2006	6/16/2006	6/16/2006	6/15/2006	6/14/2006	6/16/2006
		Validated:	7/20/2006	7/20/2006	7/20/2006	7/20/2006	7/20/2006	7/20/2006	7/20/2006
CAS NO.	COMPOUND	UNITS:							
	VOLATILES								
67-64-1	Acetone	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U
124-48-1	Dibromochloromethane	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U
75-00-3	Chloroethane	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U
67-66-3	Chloroform	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U
74-87-3	Chloromethane	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U
75-34-3	1,1-Dichloroethane	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U
107-06-2	1,2-Dichloroethane	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U
75-35-4	1,1-Dichloroethene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U
540-59-0	1,2-Dichloroethene (total)	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U
78-87-5	1,2-Dichloropropane	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U
10061-01-5	cis-1,3-Dichloropropene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U
71-43-2	Benzene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U
10061-02-6	trans-1,3-Dichloropropene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U
100-41-4	Ethylbenzene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U
591-78-6	2-Hexanone	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U
75-09-2	Methylene chloride	ug/L	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ
108-10-1	4-Methyl-2-pentanone	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U
100-42-5	Styrene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U
79-34-5	1,1,2,2-Tetrachloroethane	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U
127-18-4	Tetrachloroethene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U
108-88-3	Toluene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U
71-55-6	1,1,1-Trichloroethane	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U
75-27-4	Bromodichloromethane	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U
79-00-5	1,1,2-Trichloroethane	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U
79-01-6	Trichloroethene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U
75-01-4	Vinyl chloride	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1330-20-7	Xylenes (total)	ug/L	3 U	3 U	3 U	3 U	3 U	3 U	3 U
75-25-2	Bromoform	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U
74-83-9	Bromomethane	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U
78-93-3	2-Butanone	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U
75-15-0	Carbon disulfide	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U
56-23-5	Carbon tetrachloride	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U
108-90-7	Chlorobenzene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	OTHER								
Q18	Total Alkalinity	mg/L			382		317		
(CHLOR)	Chloride	mg/L			43.2		773		
74-84-0	Ethane	ug/L			0.5 U		0.5 U		
74-85-1	Ethene	ug/L			0.5 U		0.5 U		
74-82-8	Methane	ug/L			0.53		9.6		
(N3)	Nitrate as N	mg/L			0.017 J		0.05 U		
(SULFA)	Sulfate	mg/L			2100		542		
Q608	Total Sulfide	mg/L			3 U		4		
7440-44-0	TOC	mg/L			7.4		1.8		



SD07 DEPTH	0–0.2'
4,4'–DDE	18
ARSENIC	7.6
CADMIUM	1.1
IRON	31200
MANGANESE	4800
NICKEL	25.1

SD06 DEPTH	0–0.2'
4,4'–DDE	540 J
4,4'–DDD	2400 J
4,4'–DDT	630 J
ANTIMONY	2.1 J
ARSENIC	9.1 J
CADMIUM	1.1 J
CHROMIUM	60.3 J
COPPER	298 J
LEAD	442 J
NICKEL	47.5 J
ZINC	979 J

SD12 DEPTH	0–0.2'	0.5–0.75'
4,4'–DDE	34 JN	
4,4'–DDD	29 J	22
ARSENIC		6.6
CADMIUM	0.87 J	
COPPER	53.7 J	33.2
IRON		26700
LEAD	43.2 J	
MANGANESE		802
NICKEL	31.6 J	27.8
ZINC	170 J	

SD09 DEPTH	0–0.2'	0.5–0.8'
4,4'–DDE	46 J	
4,4'–DDD	21 J	
4,4'–DDT	28 J	
COPPER	46 J	32
IRON		26200
NICKEL	36.1 J	
LEAD	981 J	
MANGANESE		25.8
ZINC	152 J	

SD10 DEPTH	0–0.2'*	0.5–0.75'
4,4'–DDE	35 J	
4,4'–DDD	22 J	
4,4'–DDT	33 J	
ALPHA–CHLORDANE	1.1 JN	
ANTIMONY	2.8 J	
COPPER	75.3 J	28.3
LEAD	65.5 J	
MANGANESE	1120 J	
NICKEL	30.3 J	
ZINC	256 J	

SD11 DEPTH	0–0.2'	0.5–0.75'
COPPER	47.7 J	29.3 J
LEAD	40.8 J	
MANGANESE	1530 J	654
NICKEL	27.5 J	
ZINC	178 J	

SD04 DEPTH	0–0.2'
BENZO(A)ANTHRACENE	2400
BENZO(A)PYRENE	2200
bENZO(B)FLOURANTHENE	1900
BENZO(K)FLUORANTHENE	2300
CHRYSENE	2400
DIBENZ(A,H)ANTHRACENE	280 J
INDENO(1,2,3–CD)PYRENE	650
FLUORENE	590
PHENANTHRENE	5200
4,4'–DDE	21 J
4,4'–DDD	42 J
4,4'–DDT	130
ANTIMONY	7.9 J
ARSENIC	9.5
CADMIUM	1.2
CHROMIUM	359
COPPER	491
IRON	86800
LEAD	2440 J
MANGANESE	918
NICKEL	124
ZINC	2960

SD08 DEPTH	0–0.2'	0.5–0.75'
4,4'–DDE	60 J	NONE
4–4'–DDD	63 J	
ANTIMONY	2.2 J	
CADMIUM	0.91 J	
COPPER	123 J	
IRON	26900 J	
LEAD	109 J	
MANGANESE	978 J	
NICKEL	42.1 J	
ZINC	378 J	

LEGEND:

AREA OF REGRADED SOIL
SITE BOUNDARY
APPROXIMATE FILL BOUNDARY

SEDIMENT SAMPLE LOCATION (COLLECTED IN JULY 2000 AND 2004)

STATION 1 — MACROINVERTEBRATE STUDY SEDIMENT SAMPLING LOCATIONS (CSD–13 THROUGH CSD–18)

NA NOT ANALYZED
ND NOT DETECTED
NS NOT SPECIFIED
* DUPLICATE SAMPLE COLLECTED – HIGHEST CONCENTRATION IS SHOWN

193 ONE OR MORE COMPOUNDS OR METAL CONCENTRATIONS EXCEEDING NYSDEC SEDIMENT AND UPSTREAM

NOTES:

1. ONLY THOSE CONCENTRATIONS EXCEEDING NYSDEC SEDIMENT AND UPSTREAM CRITERIA ARE SHOWN. "NONE" MEANS NO CONCENTRATIONS WERE ABOVE CRITERIA AND UPSTREAM CONCENTRATION.
2. ORGANIC CONCENTRATIONS ARE IN ug/kg.
3. METALS CONCENTRATIONS ARE IN mg/kg.

300 150 0 300 600

Approximate Scale in Feet

MAP SOURCE: MALCOLM PIRNIE, 1997

FIGURE 3.5

FORMER SADVA
GUILDERLAND, NEW YORK
AOC 1
U.S. ARMY
SOUTHERN LANDFILL
SEDIMENT SAMPLE RESULTS THAT EXCEED BACKGROUND AND SCREENING CRITERIA

PARSONS
301 PLAINFIELD ROAD, SUITE 350, SYRACUSE, N.Y. 13212, PHONE: 315–451–9560

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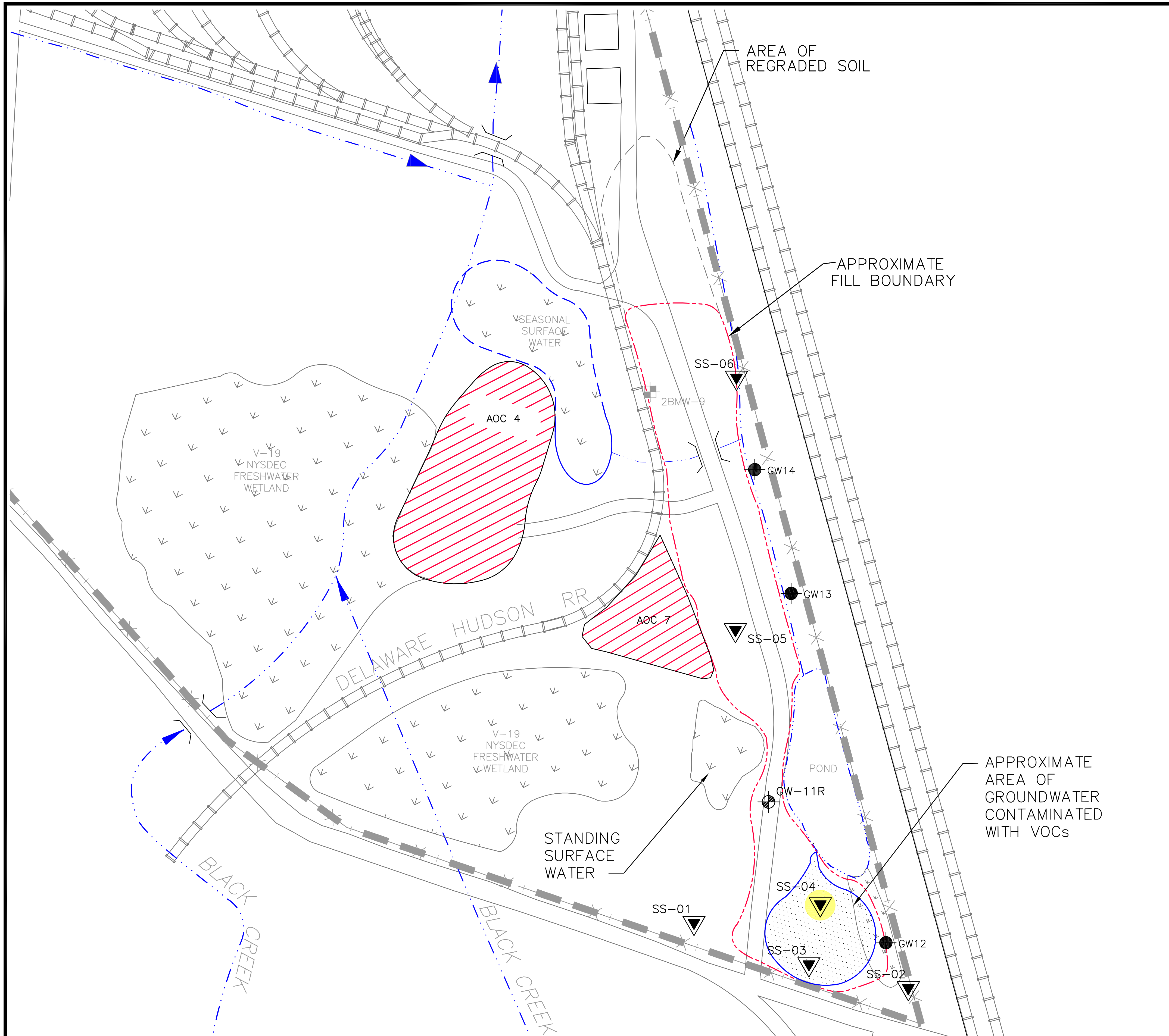

LEGEND

GW12 — SHALLOW WELL LOCATIONS (INSTALLED NOVEMBER 2004)

EXISTING MONITORING WELLS

GW-11R — EXISTING DEEP BEDROCK WELL

AREA OF REGRADED SOIL

SITE BOUNDARY

APPROXIMATE FILL BOUNDARY OF AOC 1

SS-04 — 1996 SOIL SAMPLE (MALCOLM PIRNIE)

LOCATION WHERE SOIL CONCENTRATION EXCEEDS PART 375 INDUSTRIAL LAND USE CLEANUP OBJECTIVE

300 150 0 300 600

Approximate Scale in Feet

MAP SOURCE: MALCOLM PIRNIE, 1997

FIGURE 3.8

FORMER SADVA
GUILDERLAND, NEW YORK
AOC 1
U.S. ARMY
SOUTHERN LANDFILL
SOIL SAMPLE RESULTS (1996 & 2004)

PARSONS

301 PLAINFIELD ROAD, SUITE 350, SYRACUSE, N.Y. 13212, PHONE: 315-451-9560

P:\743440 (SADVA)\cad\CE\RI-FS\AOC1-C011.dwg
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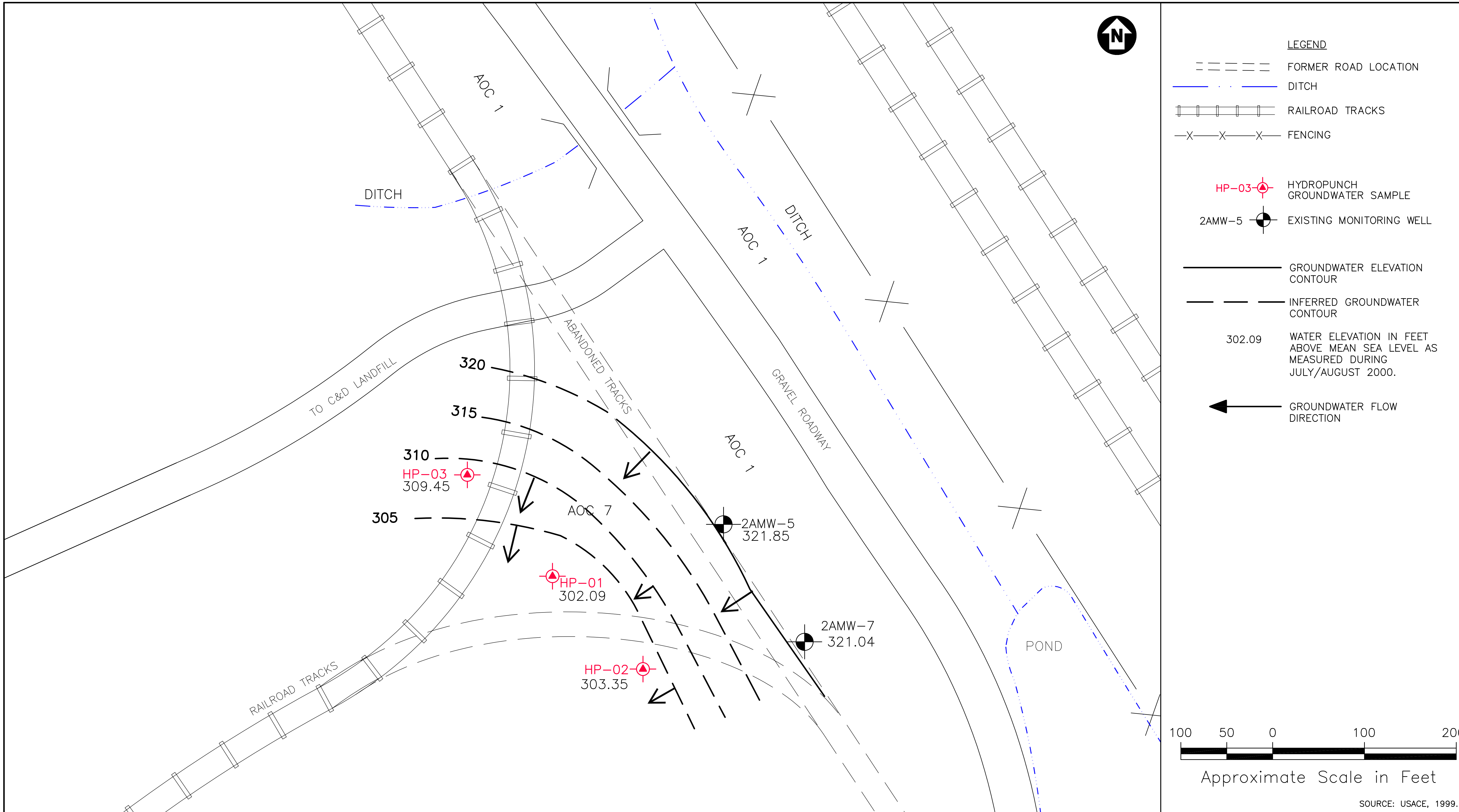

FIGURE 3.34A

SADVA
GUILDERLAND, NEW YORK
AOC 7
GROUNDWATER ELEVATION MAP
JULY/AUGUST 2000

PARSONS
290 ELWOOD DAVIS ROAD, SUITE 312, LIVERPOOL, N.Y. 13088, PHONE: 315-451-9560

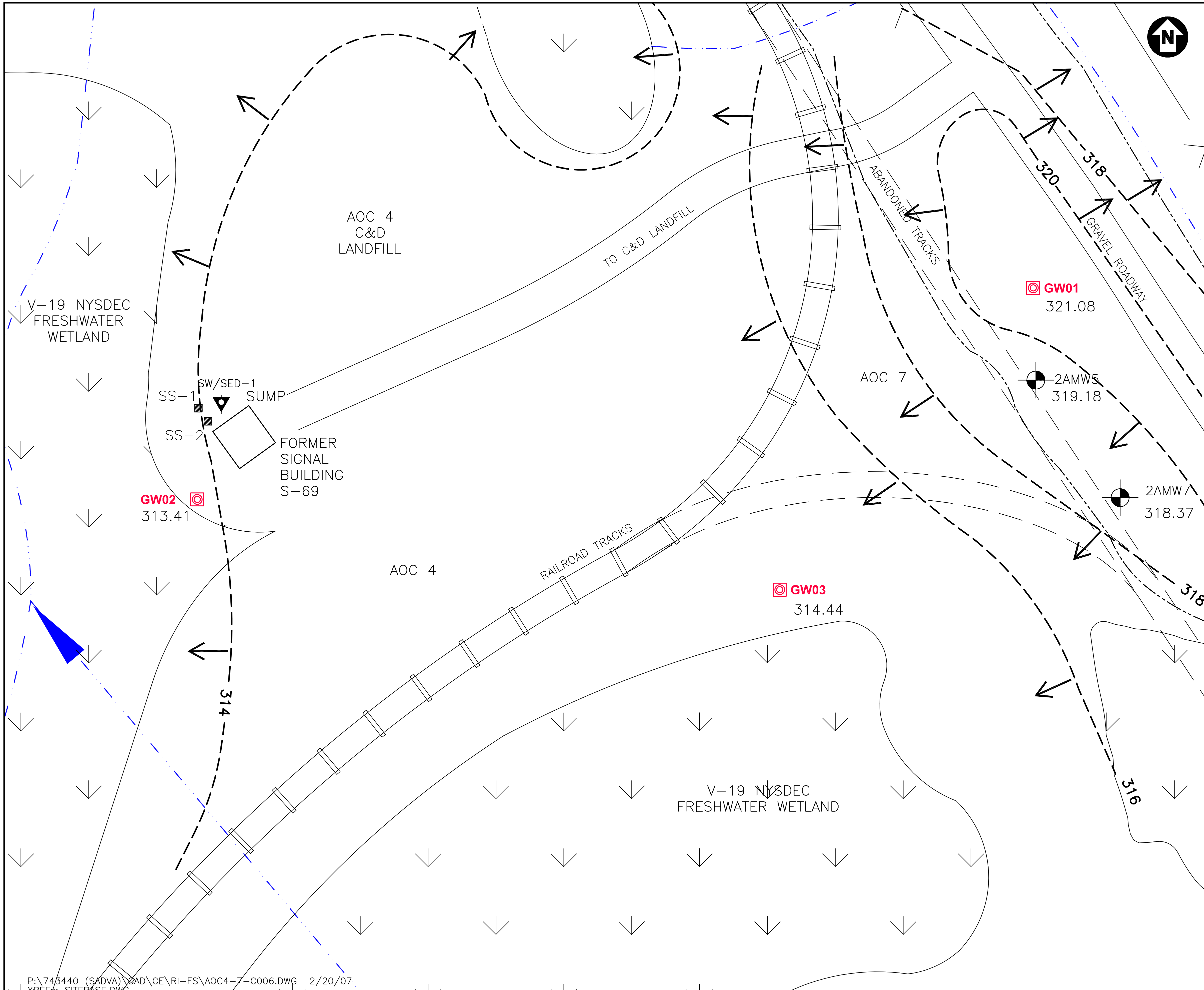

FIGURE 3.34B

SADVA
GUILDERLAND, NEW YORK
AOC 7 AND AOC 4
TRIANGULAR DISPOSAL AREA
C & D LANDFILL
GROUNDWATER ELEVATION MAP
JULY 21 & 22, 2004

PARSONS
290 ELWOOD DAVIS ROAD, SUITE 312, LIVERPOOL, N.Y. 13088, PHONE: 315-451-9560

P:\743440 (SADVA)\CAD\CE\RI-FS\AOC4-7-C006.DWG 2/20/07
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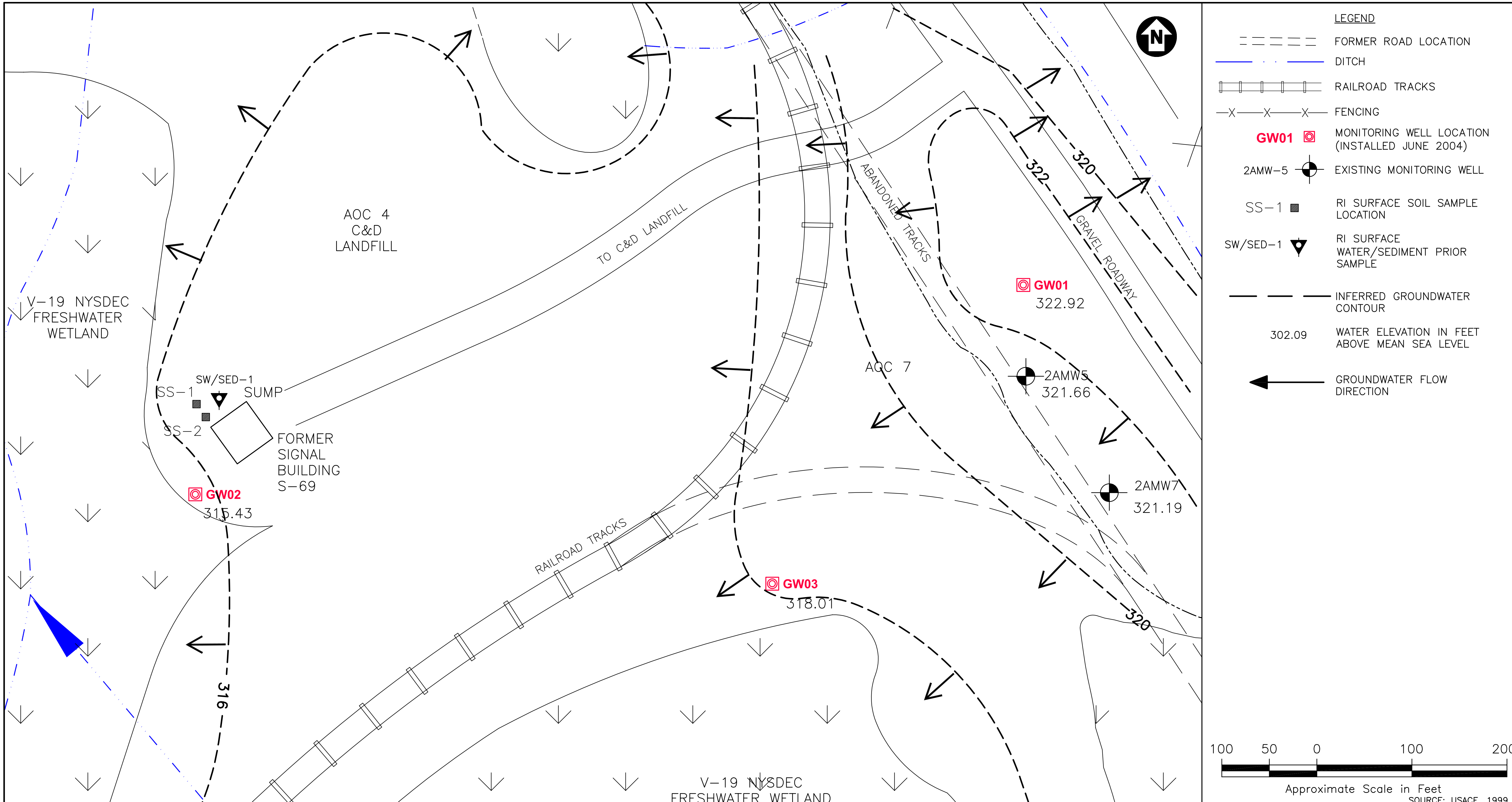


FIGURE 3.34C

SADVA
GUILDERLAND, NEW YORK
AOC 4 AND AOC 7
TRIANGULAR DISPOSAL AREA
C & D LANDFILL
GROUNDWATER ELEVATION MAP
DECEMBER 7, 2004

PARSONS

290 ELWOOD DAVIS ROAD, SUITE 312, LIVERPOOL, N.Y. 13088, PHONE: 315-451-9560

P:\743440 (SADVA)\CAD\CE\RI-FS\AOC4-7-C005.DWG 2/20/07
XREFs: SITEBASE.DWG

TABLE 3.34a
SADVA AOC 7 GROUNDWATER RESULTS (2000)

						Dup of 2AMW-7		Dup of HP01		
Former Schenectady Army Depot			SAMPLE ID:	AOC7-2AMW-5	AOC7-2AMW-7	AOC7-2AMW-17	AOC7-HP01	AOC7-HP04	AOC7-HP02	AOC7-HP03
Remedial Investigation			LAB ID:	C0H170224001	C0H170224003	C0H170224004	C0H030315001	C0H030315002	C0H010177001	C0H010177002
AOC 7 Triangular Disposal Area			SOURCE:	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh
Detected Compound Summary			SDG:	SADVA14	SADVA14	SADVA14	SADVA9	SADVA9	SADVA9	SADVA9
		NYSDEC	MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER
		Class GA	SAMPLED:	8/16/2000	8/16/2000	8/16/2000	8/2/2000	8/2/2000	7/31/2000	7/31/2000
		Ground Water	VALIDATED:	11/2/2000	11/2/2000	11/2/2000	10/30/2000	10/30/2000	10/30/2000	10/30/2000
CAS NO.	COMPOUND	Standards/Guidance Values	UNITS:							
	VOLATILES									
67-64-1	Acetone	50 (G)	ug/L	ND	ND	ND	3.3 J	4.2 J	2.4 J	ND
78-93-3	2-Butanone	50 (G)	ug/L	R	R	R	R	ND	ND	ND
	Total VOCs		ug/L	ND	ND	ND	3.3	4.2	2.4	ND
	SEMIVOLATILES									
117-81-7	bis(2-Ethylhexyl) phthalate	5	ug/L	15	27 J	5.9 J	69	8.5 J	100	13
	Total SVOCs		ug/L	15	27	5.9	69	8.5	100	13
	PESTICIDES									
72-55-9	4,4'-DDE	0.2	ug/L	ND	ND	ND	ND	ND	ND	0.023 J
72-54-8	4,4'-DDD	0.3	ug/L	ND	ND	ND	ND	ND	ND	0.035 JN
50-29-3	4,4'-DDT	0.2	ug/L	ND	ND	ND	ND	ND	ND	0.087
	Total Pesticides		ug/L	ND	ND	ND	ND	ND	ND	0.145
	PCBs									
	None Detected		ug/L	ND	ND	ND	ND	ND	ND	ND
	METALS									
7429-90-5	Aluminum	NS	ug/L	1600	2600	3560	5940	5310	389000	19600
7440-38-2	Arsenic	25	ug/L	14.7	ND	ND	4.8 J	2.7 J	207	10.2
7440-39-3	Barium	1000	ug/L	44.6 J	27.4 J	33.8 J	85 J	72.3 J	1990	187 J
7440-41-7	Beryllium	3 (G)	ug/L	ND	ND	0.12 J	0.37 J	0.41 J	20.7	1.2 J
7440-43-9	Cadmium	5	ug/L	ND	ND	ND	ND	ND	9.1 J	ND
7440-70-2	Calcium	NS	ug/L	250000	212000	238000	251000	255000	694000	147000
7440-47-3	Chromium	50	ug/L	1.8 J	3.1 J	4 J	11.9	11.2	544	31.1
7440-48-4	Cobalt	NS	ug/L	ND	ND	ND	3.8 J	ND	423	15 J
7440-50-8	Copper	200	ug/L	ND	10.3 J	6.8 J	13.8 J	13.3 J	989	37.7
7439-89-6	Iron	300	ug/L	3880	2390	3010	9920	8910	912000	31200
7439-92-1	Lead	25	ug/L	5.2	ND	2 J	4.2	4.9	388	12.1
7439-95-4	Magnesium	35000 (G)	ug/L	49500	82900	111000	106000	96200	313000	40000
7439-96-5	Manganese	300	ug/L	124	2700	1980	461	422	16200	989
7439-97-6	Mercury	0.7	ug/L	ND	ND	ND	0.069 J	0.06 J	0.97	0.067 J
7440-02-0	Nickel	100	ug/L	ND	ND	ND	12.4 J	8.1 J	857	46.5
7440-09-7	Potassium	NS	ug/L	7460	1920 J	2270 J	46800	32000	73700	17100
7782-49-2	Selenium	10	ug/L	2.3 J	ND	ND	ND	ND	ND	ND
7440-22-4	Silver	50	ug/L	ND	ND	ND	ND	ND	4.1 J	ND
7440-23-5	Sodium	20000	ug/L	8780	12100	15900	143000	134000	74700	14300
7440-28-0	Thallium	0.5 (G)	ug/L	ND	ND	ND	ND	ND	7.8	ND
7440-62-2	Vanadium	NS	ug/L	4.4 J	9 J	10.1 J	15.8 J	15.6 J	704	41.5 J
7440-66-6	Zinc	2000 (G)	ug/L	17.5 J	13.7 J	22.3	56.9	46.8	2090	109

(G) - Guidance Value.
ND - Not Detected.
J - Estimated Value.
N - Presumptive Evidence; compound identification is not definitive.
NS - No Standard.
R - Rejected during data validation.
Concentration above NYSDEC Groundwater Standard/Guidance Value.

TABLE 3.34b
SADVA AOC 7 GROUNDWATER RESULTS (2004)

				UPGRADIENT	Dup of SD-GW01-AOC-7	DOWNGRADIENT		UPGRADIENT	
USACE-Schenectady Depot			Sample ID:	SD-GW01-AOC-7	SD-GW101-AOC-7	SD-GW02-AOC-7	SD-GW03-AOC-7	SD-2AMW5-AOC-1	SD-2AMW7-AOC-1
Validated Groundwater Analytical Data			Lab Sample Id:	C4G220161003	C4G220161004	C4G230187002	C4G230187004	C4G230187003	C4G230187001
AOC 7			Source:	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh
Detected Compound Summary		NYSDEC	SDG:	C4G220161	C4G220161	C4G230187	C4G230187	C4G230187	C4G230187
		Class GA	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
		Ground Water	Sampled:	7/21/2004	7/21/2004	7/22/2004	7/22/2004	7/21/2004	7/21/2004
		Standards/Guidance Values	Validated:	9/19/2004	9/19/2004	9/19/2004	9/19/2004	9/19/2004	9/19/2004
CAS NO.	COMPOUND		UNITS:						
	SEMIVOLATILES								
117-81-7	bis(2-Ethylhexyl) phthalate	5	ug/L	22 J	1.6 J	16	7.6	27	4.1 J
85-68-7	Butyl benzyl phthalate	50 (G)	ug/L	ND	ND	ND	ND	0.12 J	ND
86-74-8	Carbazole	NS	ug/L	ND	ND	ND	ND	0.13 J	ND
84-66-2	Diethyl phthalate	50 (G)	ug/L	ND	ND	ND	ND	0.28 J	ND
84-74-2	Di-n-butyl phthalate	50	ug/L	ND	ND	1.7 J	ND	0.35 J	1.6 J
	CPAHs								
	None Detected								
	NPAHs								
206-44-0	Fluoranthene	50 (G)	ug/L	ND	ND	ND	ND	0.2 J	ND
129-00-0	Pyrene	50 (G)	ug/L	ND	ND	ND	ND	0.17 J	ND
	Total NPAHs			**ND**	**ND**	**ND**	**ND**	**0.37**	**ND**
	TOTAL SVOCs			**22**	**1.6**	**17.7**	**7.6**	**28.25**	**5.7**
	METALS								
7429-90-5	Aluminum	NS	ug/L	12.1 J	13.7 J	59.9 J	27.4 J	79.4 J	29.5 J
7440-38-2	Arsenic	25	ug/L	ND U	ND	ND	ND	11.6	ND
7440-39-3	Barium	1000	ug/L	38.1 J	40.7 J	197 J	10.4 J	41.6 J	16.3 J
7440-41-7	Beryllium	3 (G)	ug/L	0.53 J	0.48 J	ND	ND	ND	ND
7440-70-2	Calcium	NS	ug/L	184000	185000	97600	161000	226000	274000
7440-50-8	Copper	200	ug/L	ND	ND	ND	2 J	4.6 J	ND
7439-89-6	Iron	300	ug/L	2840	3100	5360	ND	2540	ND
7439-92-1	Lead	25	ug/L	ND	ND	ND	ND	1.6 J	ND
7439-95-4	Magnesium	35000 (G)	ug/L	128000	131000	15100	29900	47000	178000
7439-96-5	Manganese	300	ug/L	1480	1700	456	59	810	135
7440-02-0	Nickel	100	ug/L	ND	ND	ND	ND	2 J	ND
7440-09-7	Potassium	NS	ug/L	3820 J	4500 J	1140 J	296 J	5740	1090 J
7440-22-4	Silver	50	ug/L	0.59 J	0.75 J	ND	ND	ND	ND
7440-23-5	Sodium	20000	ug/L	37300	38900	19200	5510	9730	24100
7440-62-2	Vanadium	NS	ug/L	ND	ND	ND	1.1 J	5.4 J	7.6 J
7440-66-6	Zinc	2000 (G)	ug/L	3.4 J	4 J	2.1 J	12.4 J	11.6 J	6.6 J

(G) - Guidance Value.
U = Analyte not detected; the number is the analytical reporting limit.
J - Estimated Value
NA - Not Analyzed
R - Rejected Value
ND - Not Detected
NS - No Standard
Concentration above NYSDEC Class GA Groundwater Standards/Guidance values and upgradient concentrations.

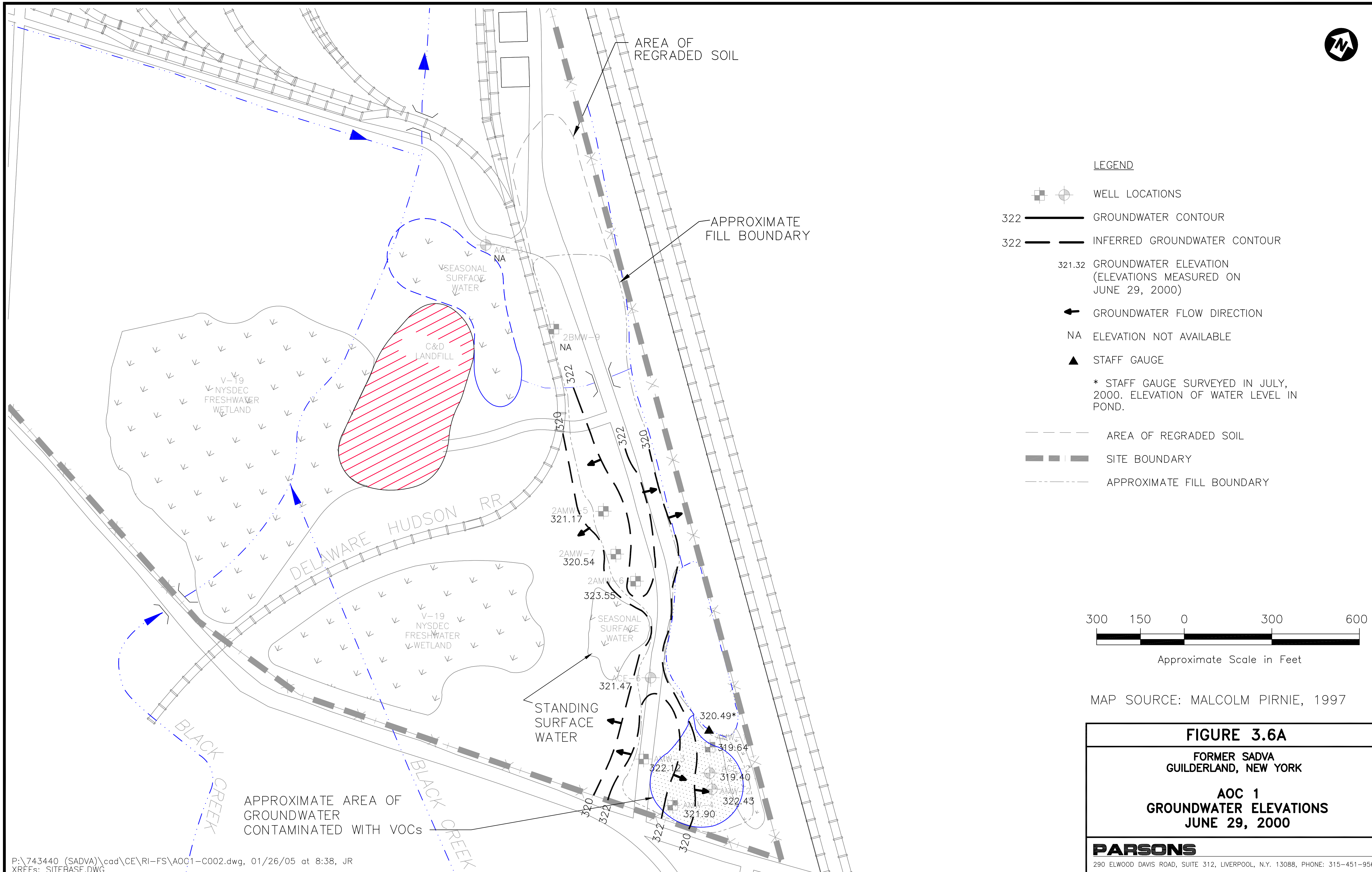
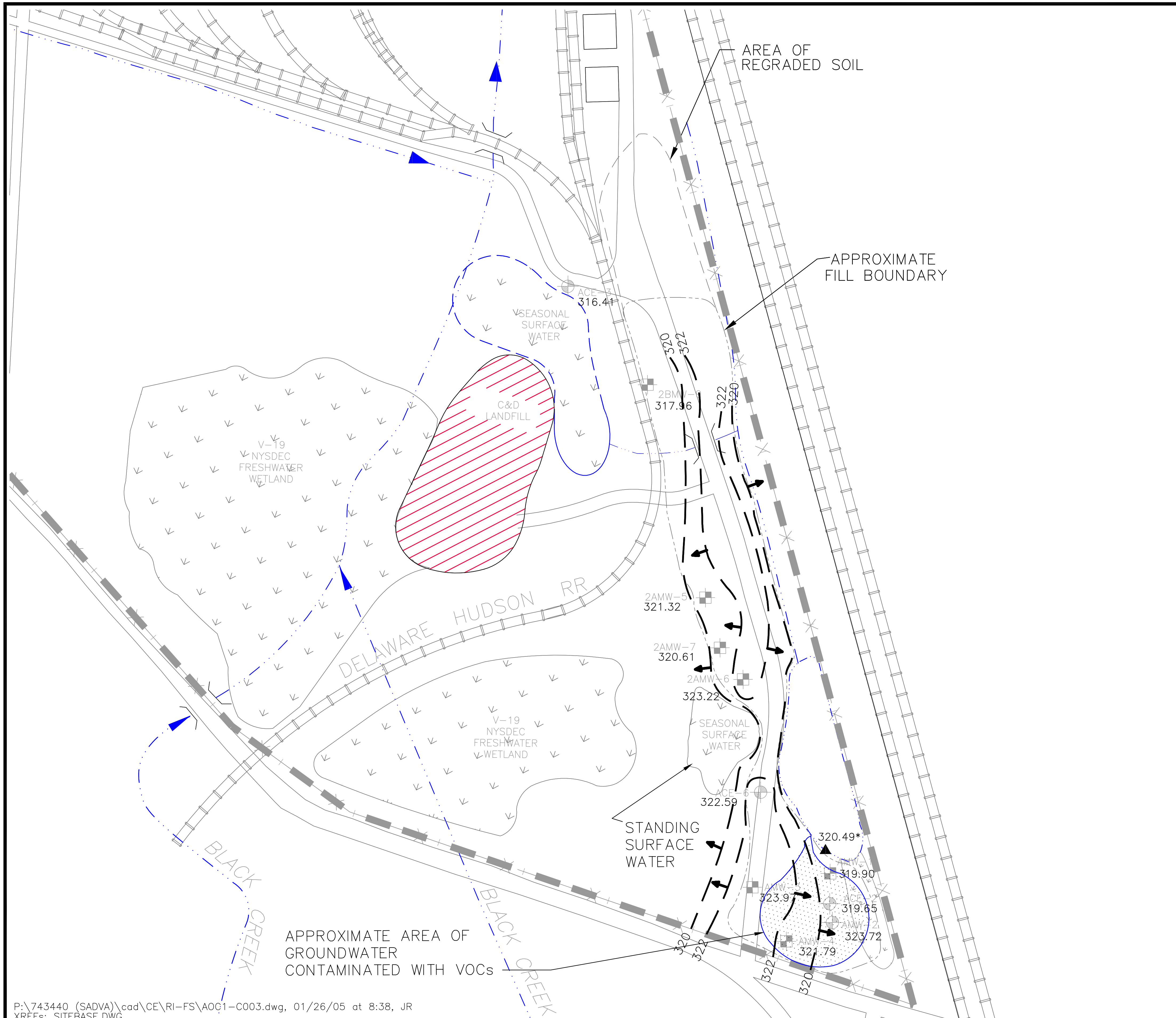


FIGURE 3.6A

FORMER SADVA
GUILDERLAND, NEW YORK

AOC 1
GROUNDWATER ELEVATIONS
JUNE 29, 2000

PARSONS
290 ELWOOD DAVIS ROAD, SUITE 312, LIVERPOOL, N.Y. 13088, PHONE: 315-451-9560



LEGEND

WELL LOCATIONS

322 GROUNDWATER CONTOUR

322 INFERRED GROUNDWATER CONTOUR

321.32 GROUNDWATER ELEVATION (ELEVATIONS MEASURED ON JUNE 29, 2000)

GROUNDWATER FLOW DIRECTION

NA ELEVATION NOT AVAILABLE

STAFF GAUGE

* STAFF GAUGE SURVEYED IN JULY, 2000. ELEVATION OF WATER LEVEL IN POND.

AREA OF REGRADED SOIL

SITE BOUNDARY

APPROXIMATE FILL BOUNDARY

300 150 0 300 600

Approximate Scale in Feet

MAP SOURCE: MALCOLM PIRNIE, 1997

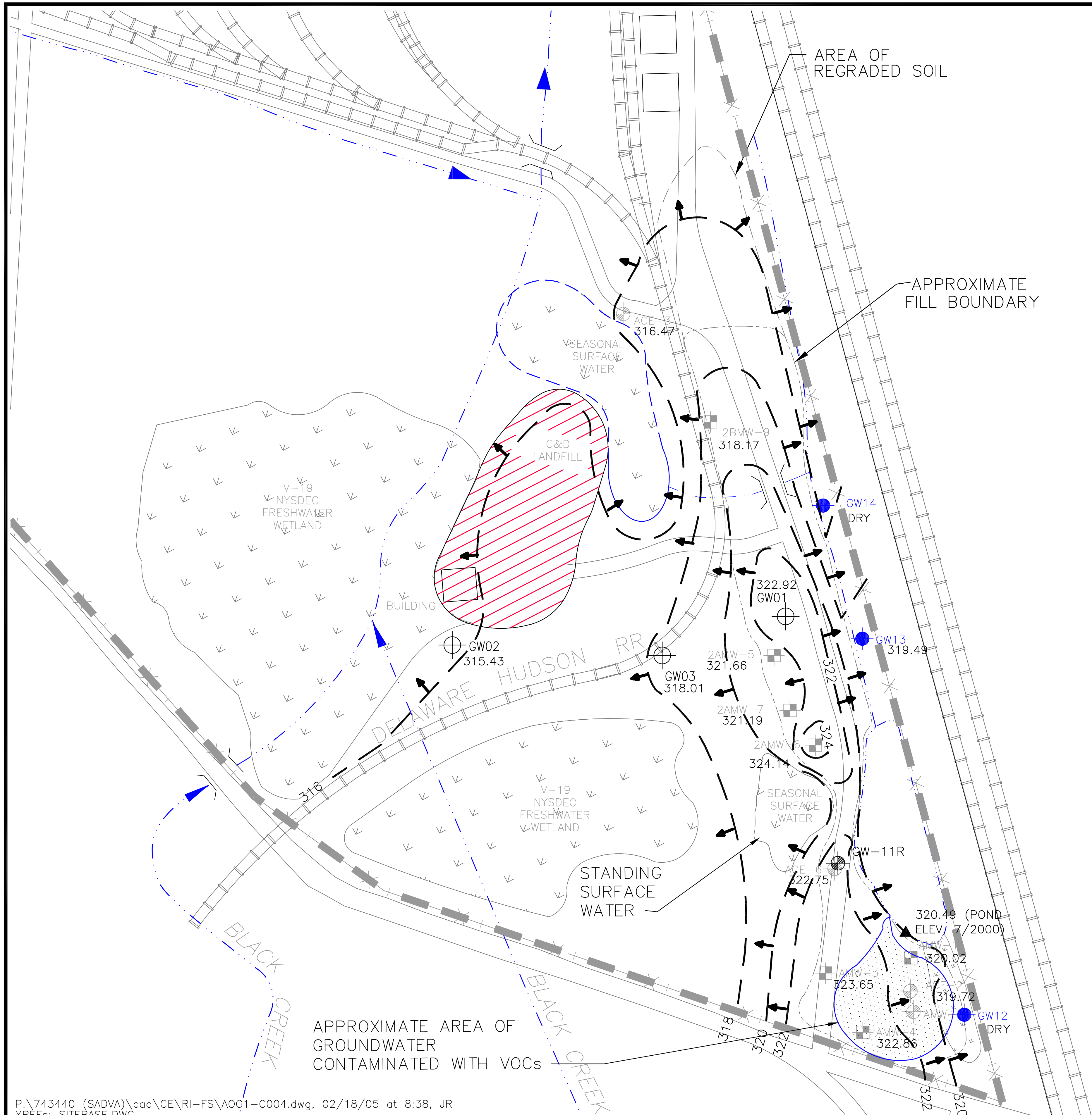
FIGURE 3.6B

FORMER SADVA
GUILDERLAND, NEW YORK

AOC 1
GROUNDWATER ELEVATIONS
NOVEMBER 30, 2000

PARSONS

290 ELWOOD DAVIS ROAD, SUITE 312, LIVERPOOL, N.Y. 13088, PHONE: 315-451-9560



P:\743440 (SADVA)\cad\CE\RI-FS\AOC1-C004.dwg, 02/18/05 at 8:38, JR
XREFs: SITEBASE.DWG

LEGEND

- WELL LOCATIONS
- 322 GROUNDWATER CONTOUR
- 322 INFERRED GROUNDWATER CONTOUR
- 321.32 GROUNDWATER ELEVATION (ELEVATIONS MEASURED ON DECEMBER 7, 2004)
- GROUNDWATER FLOW DIRECTION
- NA ELEVATION NOT AVAILABLE
- STAFF GAUGE
- * STAFF GAUGE SURVEYED JULY, 2000. ELEVATION OF WATER LEVEL IN POND.
- AREA OF REGRADED SOIL
- SITE BOUNDARY
- APPROXIMATE FILL BOUNDARY

300 150 0 300 600

Approximate Scale in Feet

MAP SOURCE: MALCOLM PIRNIE, 1997

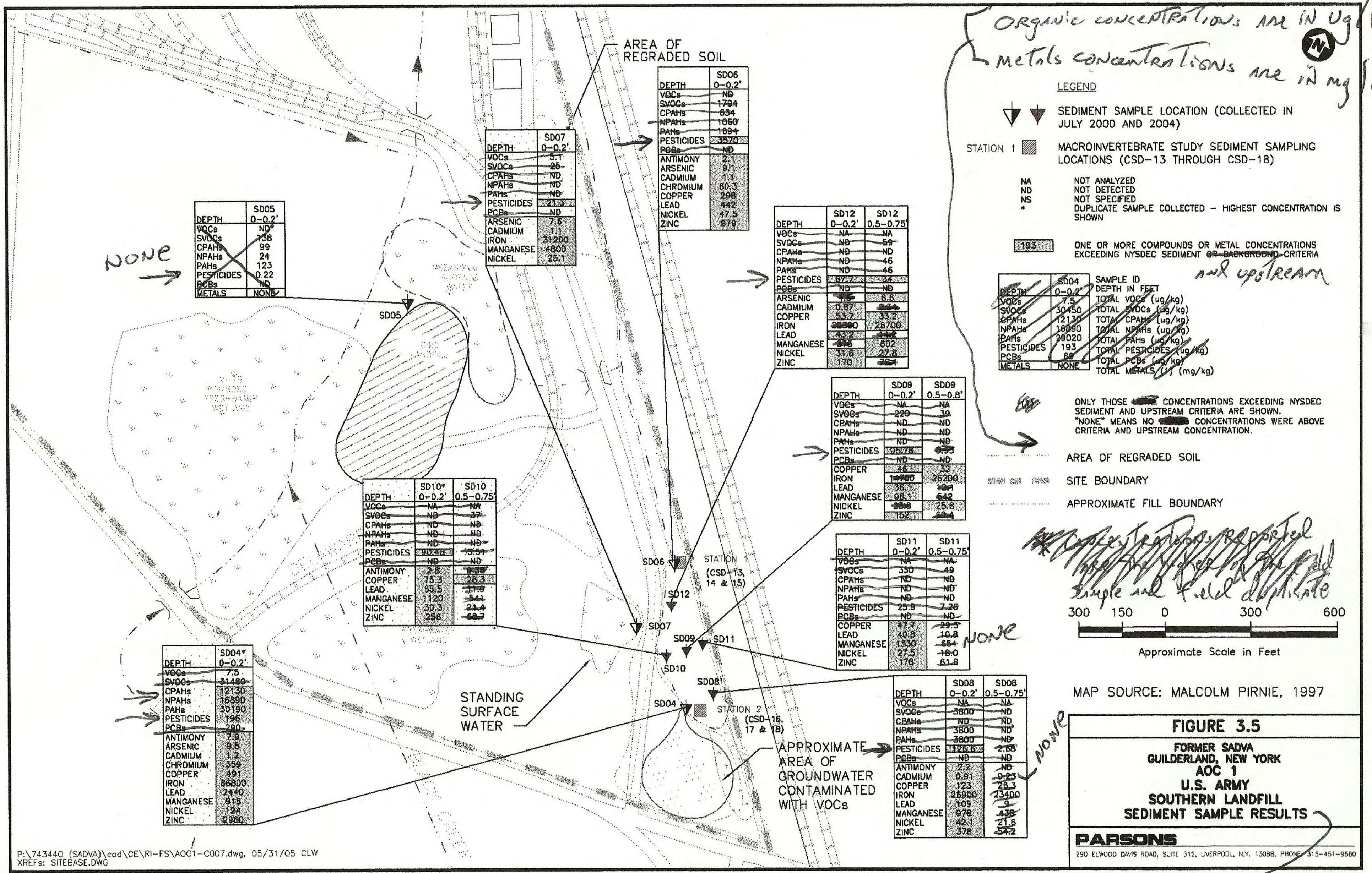
FIGURE 3.6C

FORMER SADVA
GUILDERLAND, NEW YORK

AOC 1
GROUNDWATER ELEVATIONS
DECEMBER 7, 2004

PARSONS
290 ELWOOD DAVIS ROAD, SUITE 312, LIVERPOOL, N.Y. 13088, PHONE: 315-451-9560

List all shaded Values shown on Table 3-6A + 3.6B - need To list individual chemicals



That exceed Background and Screening Criteria

TABLE 3.6a
SADVA AOC 1 SEDIMENT RESULTS (2000)

					Main Pond	North Wetland	Main Pond	Small Pond	Dup of SD04
Former Schenectady Army Depot Remedial Investigation U.S. Army Southern Landfill AOC 1 Sediment Data Detected Compound Summary				SAMPLE ID:	AOC1-SD04	AOC1-SD05	AOC1-SD06	AOC1-SD07	AOC1-SD08
				LAB ID:	C0G140158001	C0G140158005	C0G140158003	C0G140158004	C0G140158002
				DEPTH:	0.2'	0.2'	0.2'	0.2'	0.2'
				SOURCE:	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh
				SDG:	SADVA1	SADVA1	SADVA1	SADVA1	SADVA1
				MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL
				SAMPLED:	7/13/2000	7/13/2000	7/13/2000	7/13/2000	7/13/2000
		Upstream/	NYSDEC	VALIDATED:	10/4/2000	10/4/2000	10/4/2000	10/4/2000	10/4/2000
CAS NO.	COMPOUND	Background Ranges	Sediment Criteria	UNITS:					
	VOLATILES								
67-64-1	Acetone	ND-14	NC	ug/kg	7.5 J	ND	ND	5.1 J	6.6 J
	Total VOCs			**ug/kg**	**7.5**	**ND**	**ND**	**5.1**	**6.6**
	SEMIVOLATILES								
117-81-7	bis(2-Ethylhexyl) phthalate	ND	2,925 (C)	ug/kg	390 J	15 J	100 J	25 J	290 J
86-74-8	Carbazole	ND-50	NC	ug/kg	740	ND	ND	ND	690
132-64-9	Dibenzofuran	ND-50	NC	ug/kg	300 J	ND	ND	ND	310 J
	CPAHs								
56-55-3	Benzo(a)anthracene	ND-310	19 (C)	ug/kg	2400	17 J	94 J	ND	2400
50-32-8	Benzo(a)pyrene	ND-330	19 (H)	ug/kg	2200	18 J	110 J	ND	2100
205-99-2	Benzo(b)fluoranthene	ND-440	19 (H)	ug/kg	1900	19 J	160 J	ND	1900
207-08-9	Benzo(k)fluoranthene	ND-360	19 (H)	ug/kg	2300	22 J	130 J	ND	2300
218-01-9	Chrysene	ND-730	19 (H)	ug/kg	2400	23 J	140 J	ND	2300
53-70-3	Dibenz(a,h)anthracene	ND	88 (LM)	ug/kg	280 J	ND	ND	ND	260 J
193-39-5	Indeno(1,2,3-cd)pyrene	ND-78	19 (H)	ug/kg	650	ND	ND	ND	580 J
	NPAHs								
91-57-6	2-Methylnaphthalene	ND	500 (C)	ug/kg	130 J	ND	230 J	ND	90 J
83-32-9	Acenaphthene	ND-92	2058 (C)	ug/kg	700	ND	ND	ND	660
120-12-7	Anthracene	ND-170	1573 (C)	ug/kg	1200	ND	ND	ND	1500
191-24-2	Benzo(ghi)perylene	ND-66	NC	ug/kg	570 J	ND	ND	ND	500 J
206-44-0	Fluoranthene	ND-1200	14994 (C)	ug/kg	4700	ND	300 J	ND	5400
86-73-7	Fluorene	ND-100	118 (C)	ug/kg	590	ND	ND	ND	650
91-20-3	Naphthalene	ND-210	441 (C)	ug/kg	300 J	ND	190 J	ND	150 J
85-01-8	Phenanthrene	ND-400	1764 (C)	ug/kg	5200	ND	160 J	ND	5800
129-00-0	Pyrene	ND-920	14127 (C)	ug/kg	3500	24 J	180 J	ND	3600
	Total PAHs		**35000 (LM)**	**ug/kg**	**29020**	**123**	**1694**	**ND**	**30190**
	Total SVOCs			**ug/kg**	**30450**	**138**	**1794**	**25**	**31480**
	PESTICIDES								
72-55-9	4,4'-DDE	ND-0.23	14.7 (W)	ug/kg	21 J	0.22 JN	540 J	18	32 J
72-54-8	4,4'-DDD	ND	14.7 (W)	ug/kg	42 J	ND	2400 J	2 J	54 J
50-29-3	4,4'-DDT	ND	14.7 (C)	ug/kg	130	ND	630 J	1.3 J	110 J
	Total Pesticides			**ug/kg**	**193**	**0.22**	**3570**	**21.3**	**196**
	PCBs								
11097-69-1	Aroclor 1254	ND	284 (C)	ug/kg	69	ND	ND	ND	290
	Total PCBs			**ug/kg**	**69**	**ND**	**ND**	**ND**	**290**

TABLE 3.6a
SADVA AOC 1 SEDIMENT RESULTS (2000)

					Main Pond	North Wetland	Main Pond	Small Pond	Dup of SD04
Former Schenectady Army Depot				SAMPLE ID:	AOC1-SD04	AOC1-SD05	AOC1-SD06	AOC1-SD07	AOC1-SD08
Remedial Investigation				LAB ID:	C0G140158001	C0G140158005	C0G140158003	C0G140158004	C0G140158002
U.S. Army Southern Landfill				DEPTH:	0.2'	0.2'	0.2'	0.2'	0.2'
AOC 1 Sediment Data				SOURCE:	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh
Detected Compound Summary				SDG:	SADVA1	SADVA1	SADVA1	SADVA1	SADVA1
				MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL
				SAMPLED:	7/13/2000	7/13/2000	7/13/2000	7/13/2000	7/13/2000
		Upstream/	NYSDEC	VALIDATED:	10/4/2000	10/4/2000	10/4/2000	10/4/2000	10/4/2000
CAS NO.	COMPOUND	Background Ranges	Sediment Criteria	UNITS:					
	METALS								
7429-90-5	Aluminum	8040-17900	NC	mg/kg	15300	16400	9440 J	12600	12600
7440-36-0	Antimony	ND-0.44	2 (L)	mg/kg	7.9 J	ND	2.1 J	ND	6.8 J
7440-38-2	Arsenic	3.1-5.1	6 (L)	mg/kg	9.5	2.5	9.1 J	7.6	7
7440-39-3	Barium	53.9-141	NC	mg/kg	205	128	71.6 J	258	216
7440-41-7	Beryllium	0.62-0.92	NC	mg/kg	7.6	0.89	3.2 J	0.81 J	7
7440-43-9	Cadmium	ND-0.75	0.6 (L)	mg/kg	1.2	0.55 J	1.1 J	1.1	0.96
7440-70-2	Calcium	2660-6700	NC	mg/kg	29900	5070	4850 J	2230	20200
7440-47-3	Chromium	11.2-22	26 (L)	mg/kg	359	15.3	60.3 J	16.9	193
7440-48-4	Cobalt	7.1-14	NC	mg/kg	47.4	6.2 J	12.7 J	22.3	38.5
7440-50-8	Copper	13-27.7	16 (L)	mg/kg	478	17.2	298 J	24.1	491
7439-89-6	Iron	18300-25400	20000 (L)	mg/kg	86800	15200	22900 J	31200	54800
7439-92-1	Lead	7.8-20.9	31 (L)	mg/kg	2440 J	23.1 J	442 J	16.3 J	1300 J
7439-95-4	Magnesium	3190-5190	NC	mg/kg	6080	3240	4300 J	3940	3500
7439-96-5	Manganese	328-647	460 (L)	mg/kg	918	98	209 J	4800	553
7439-97-6	Mercury	0.027-0.091	0.15 (L)	mg/kg	0.038 J	0.083	0.11 J	0.029 J	0.036 J
7440-02-0	Nickel	15.6-24.5	16 (L)	mg/kg	124	17.4	47.5 J	25.1	114
7440-09-7	Potassium	734-1530	NC	mg/kg	1330	1150	1440 J	956	1230
7782-49-2	Selenium	ND-0.81	NC	mg/kg	ND	0.65 J	1.5 J	ND	ND
7440-22-4	Silver	ND-0.5	1 (L)	mg/kg	0.49 J	ND	0.66 J	0.47 J	0.42 J
7440-23-5	Sodium	71.6-790	NC	mg/kg	630 J	108 J	680 J	84.5 J	677 J
7440-28-0	Thallium	ND-1.5	NC	mg/kg	ND	0.58	ND	ND	ND
7440-62-2	Vanadium	14.6-28.4	NC	mg/kg	97	22.8	49.4 J	25.6	89.9
7440-66-6	Zinc	47.7-118	120 (L)	mg/kg	2960	76.5	979 J	87.1	2630
	OTHER								
7440-44-0	Total Organic Carbon	NA		mg/kg	20400	53600	98300 J	14400	22800

CPAH - Carcinogenic Polynuclear Aromatic Hydrocarbon
NPAH - Noncarcinogenic Polynuclear Aromatic Hydrocarbon
ND - Not detected
NA - Not Analyzed
C = Benthic Aquatic Chronic Criteria (TOC Adjusted),(NYSDEC, 1999).
H = Human Health Bioaccumulation (TOC Adjusted), (NYSDEC, 1999).
LM = Medium Effects Level (TOC Adjusted), (Long and Morgan, 1990).
W = Wildlife Bioaccumulation Criteria (TOC Adjusted), (NYSDEC, 1999).
L = Lowest Effect Level (metals), (NYSDEC, 1999).
Exceeds upstream/background range and NYSDEC sediment criteria.
NC - No criteria available.
R - Data rejected during data validation.
J - Estimated Value

TABLE 3.6b
SADVA AOC 1 SEDIMENT RESULTS (2004)

										Dup of SD-SD10-0-0.2-AOC-1
USACE-Schenectady Depot				Sample ID:	SD-SD08-0-0.2-AOC-1	SD-SD08-0.5-0.75-AOC-1	SD-SD09-0-0.2-AOC-1	SD-SD09-0.5-0.8-AOC-1	SD-SD10-0-0.2-AOC-1	SD-SD110-0-0.2-AOC-1
Validated Sediment Analytical Data				Lab Sample Id:	C4G210269001	C4G210269002	C4G210269003	C4G210269004	C4G210269005	C4G210269006
AOC 1				Depth:	0-0.2	0.5-0.75	0-0.2	0.5-0.8	0-0.2	0-0.2
Detected Compound Summary				Source:	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh
				SDG:	C4G210269	C4G210269	C4G210269	C4G210269	C4G210269	C4G210269
				Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Sampled:	7/19/2004	7/19/2004	7/19/2004	7/19/2004	7/19/2004	7/19/2004
		Upstream/	NYSDEC	Validated:	9/19/2004	9/19/2004	9/19/2004	9/19/2004	9/19/2004	9/19/2004
CAS NO.	COMPOUND	Background Ranges	Sediment Criteria	UNITS:						
	SEMIVOLATILES									
84-74-2	Di-n-butyl phthalate	ND	NC	ug/kg	ND	ND	220 J	39 J	ND	ND
	CPAHs									
	None Detected									
	NPAHs									
206-44-0	Fluoranthene	ND-1200	14994 (C)	ug/kg	1600 J	ND	ND	ND	ND	ND
85-01-8	Phenanthrene	ND-400	1764 (C)	ug/kg	900 J	ND	ND	ND	ND	ND
129-00-0	Pyrene	ND-920	14127 (C)	ug/kg	1300 J	ND	ND	ND	ND	ND
	Total NPAHs				3800	ND	ND	ND	ND	ND
	Total PAHs				3800	ND	ND	ND	ND	ND
	TOTAL SVOCs				3800	ND	220	39	ND	ND
	PESTICIDES									
319-85-7	beta-BHC	ND	NC	ug/kg	ND	ND	ND	ND	4.5 JN	ND
319-86-8	delta-BHC	ND	NC	ug/kg	ND	ND	ND	ND	ND	ND
58-89-9	gamma-BHC (Lindane)	ND	NC	ug/kg	ND	ND	ND	ND	ND	ND
959-98-8	Endosulfan I	ND	NC	ug/kg	3.6 J	ND	0.78 JN	0.2 J	0.88 JN	ND
72-55-9	4,4'-DDE	ND-0.23	14.7 (W)	ug/kg	60 J	0.68 JN	46 J	1.8 JN	30 JN	35 J
72-20-8	Endrin	ND	59 (C)	ug/kg	ND	ND	ND	0.23 JN	ND	ND
33213-65-9	Endosulfan II	ND	NC	ug/kg	ND	ND	ND	ND	ND	ND
72-54-8	4,4'-DDD	ND	14.7 (W)	ug/kg	63 J	2 J	21 J	2.3	21 J	22 J
50-29-3	4,4'-DDT	ND	14.7 (C)	ug/kg	ND	ND	28 J	1.4 J	33 J	ND
5103-71-9	alpha-Chlordane	ND	0.44 (C)	ug/kg	ND	ND	ND	ND	1.1 JN	ND
	TOTAL PESTICIDES				126.6	2.68	95.78	5.93	90.48	57
	PCBS									
	None Detected	ND			ND	ND	ND	ND	ND	ND
	METALS									
7429-90-5	Aluminum	8040-17900	NC	mg/kg	9940 J	11100	5830 J	11100	5740 J	7100 J
7440-36-0	Antimony	ND-0.44	2 (L)	mg/kg	2.2 J	ND	1.4 J	ND	2.8 J	2.5 J
7440-38-2	Arsenic	3.1-5.1	6 (L)	mg/kg	5.1 J	5.4	3.1 J	5.9	3.5 J	4.3 J
7440-39-3	Barium	53.9-141	NC	mg/kg	125 J	56.7	84.8 J	57.9	87 J	112 J
7440-41-7	Beryllium	0.62-0.92	NC	mg/kg	1.4 J	0.78	0.67 J	0.83	0.78 J	0.93 J
7440-43-9	Cadmium	ND-0.75	0.6 (L)	mg/kg	0.91 J	0.23 J	0.44 J	0.26 J	0.57 J	0.74 J
7440-70-2	Calcium	2660-6700	NC	mg/kg	139000 J	14600	112000 J	16100	119000 J	156000 J
7440-47-3	Chromium	11.2-22	26 (L)	mg/kg	23.6 J	15.4	11.8 J	16	13.8 J	17 J
7440-48-4	Cobalt	7.1-14	NC	mg/kg	12.7 J	9.4	6.7 J	10.8	7.1 J	8.7 J
7440-50-8	Copper	13-27.7	16 (L)	mg/kg	123 J	26.3	46 J	32	64 J	75.3 J
7439-89-6	Iron	18300-25400	20000 (L)	mg/kg	26900 J	23400	14700 J	26200	15600 J	18800 J
7439-92-1	Lead	7.8-20.9	31 (L)	mg/kg	109 J	9	36.1 J	12.1	53.9 J	65.5 J
7439-95-4	Magnesium	3190-5190	NC	mg/kg	7230 J	6830	5220 J	6750	5120 J	6460 J
7439-96-5	Manganese	328-647	460 (L)	mg/kg	978 J	438	981 J	542	896 J	1120 J
7439-97-6	Mercury	0.027-0.091	0.15 (L)	mg/kg	ND	0.023 J	ND	0.018 J	ND	ND
7440-02-0	Nickel	15.6-24.5	16 (L)	mg/kg	42.1 J	21.6	23.8 J	25.8	24.8 J	30.3 J
7440-09-7	Potassium	734-1530	NC	mg/kg	1880 J	1440	989 J	1350	1070 J	1340 J
7440-22-4	Silver	ND-0.5	1 (L)	mg/kg	0.44 J	0.098 J	0.3 J	0.091 J	0.22 J	0.39 J
7440-23-5	Sodium	71.6-790	NC	mg/kg	1470 J	144 J	628 J	149 J	690 J	890 J
7440-62-2	Vanadium	14.6-28.4	NC	mg/kg	81.4 J	21.8	45.6 J	21.6	49.1 J	61.2 J
7440-66-6	Zinc	47.7-118	120 (L)	mg/kg	378 J	54.2	152 J	69.4	201 J	256 J

U = Analyte not detected; the number is the analytical reporting limit.
CPAH = Carcinogenic Polynuclear Aromatic Hydrocarbon.
NPAH = Noncarcinogenic Polynuclear Aromatic Hydrocarbon.
J = Estimated Value
ND = Not Detected
C = Benthic Aquatic Chronic Criteria (TOC Adjusted),(NYSDEC, 1999).
L = Lowest Effect Level (metals), (NYSDEC, 1999)
W = Wildlife Bioaccumulation Criteria (TOC Adjusted), (NYSDEC, 1999).
NS = No Standard
N = Presumptive Evidence
NC = No Criteria
- concentration above NYSDEC Sediment criteria and background.

TABLE 3.6b
SADVA AOC 1 SEDIMENT RESULTS (2004)

USACE-Schenectady Depot				Sample ID:	SD-SD10-0.5-0.75-AOC-1	SD-SD11-0-0.2-AOC-1	SD-SD11-0.5-0.75-AOC-1	SD-SD12-0-0.2-AOC-1	SD-SD12-0.5-0.75-AOC-1
Validated Sediment Analytical Data				Lab Sample Id:	C4G210269007	C4G210269008	C4G210269009	C4G210269014	C4G210269010
AOC 1				Depth:	0.5-0.75	0-0.2	0.5-0.75	0-0.2	0.5-0.75
Detected Compound Summary				Source:	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh	STL Pittsburgh
				SDG:	C4G210269	C4G210269	C4G210269	C4G210269	C4G210269
				Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
				Sampled:	7/19/2004	7/19/2004	7/19/2004	7/20/2004	7/19/2004
		Upstream/	NYSDEC	Validated:	9/19/2004	9/19/2004	9/19/2004	9/19/2004	9/19/2004
CAS NO.	COMPOUND	Background Ranges	Sediment Criteria	UNITS:					
	SEMIVOLATILES								
84-74-2	Di-n-butyl phthalate	ND	NC	ug/kg	37 J	350 J	49 J	ND	59 J
	CPAHs								
	None Detected								
	NPAHs								
206-44-0	Fluoranthene	ND-1200	14994 (C)	ug/kg	ND	ND	ND	ND	46 J
85-01-8	Phenanthrene	ND-400	1764 (C)	ug/kg	ND	ND	ND	ND	ND
129-00-0	Pyrene	ND-920	14127 (C)	ug/kg	ND	ND	ND	ND	ND
	Total NPAHs				ND	ND	ND	ND	46
	Total PAHs				ND	ND	ND	ND	46
	TOTAL SVOCs				37	350	49	ND	59
	PESTICIDES								
319-85-7	beta-BHC	ND	NC	ug/kg	ND	ND UJ	ND	ND	ND
319-86-8	delta-BHC	ND	NC	ug/kg	ND	ND UJ	ND	3.2 JN	ND
58-89-9	gamma-BHC (Lindane)	ND	NC	ug/kg	ND	ND UJ	ND	1.5 JN	ND
959-98-8	Endosulfan I	ND	NC	ug/kg	ND	ND UJ	ND	ND	ND
72-55-9	4,4'-DDE	ND-0.23	14.7 (W)	ug/kg	1.5 J	9.9 JN	3.2	34 JN	12
72-20-8	Endrin	ND	59 (C)	ug/kg	ND	ND	ND	ND	ND
33213-65-9	Endosulfan II	ND	NC	ug/kg	0.31 JN	ND	ND	ND	ND
72-54-8	4,4'-DDD	ND	14.7 (W)	ug/kg	1.7 J	8.4 J	3.1	29 J	22
50-29-3	4,4'-DDT	ND	14.7 (C)	ug/kg	ND	7.6 J	0.96 JN	ND	ND
5103-71-9	alpha-Chlordane	ND	0.44 (C)	ug/kg	ND	ND	ND	ND	ND
	TOTAL PESTICIDES				3.51	25.9	7.26	67.7	34
	PCBS								
	None Detected	ND			ND	ND	ND	ND	ND
	METALS								
7429-90-5	Aluminum	8040-17900	NC	mg/kg	10000	8070 J	6940	9650 J	11400
7440-36-0	Antimony	ND-0.44	2 (L)	mg/kg	ND	1.7 J	ND	ND	ND
7440-38-2	Arsenic	3.1-5.1	6 (L)	mg/kg	4.9	3.4 J	6	4.6 J	6.6
7440-39-3	Barium	53.9-141	NC	mg/kg	47	106 J	90.7	87.5 J	63
7440-41-7	Beryllium	0.62-0.92	NC	mg/kg	0.71	0.93 J	0.7	1.4 J	0.88
7440-43-9	Cadmium	ND-0.75	0.6 (L)	mg/kg	0.26 J	0.52 J	0.34 J	0.87 J	0.34 J
7440-70-2	Calcium	2660-6700	NC	mg/kg	16100	134000 J	53300	54900 J	22600
7440-47-3	Chromium	11.2-22	26 (L)	mg/kg	14.4	15.2 J	11.1	17.3 J	17
7440-48-4	Cobalt	7.1-14	NC	mg/kg	9.2	9.2 J	7.8	10.7 J	12.5
7440-50-8	Copper	13-27.7	16 (L)	mg/kg	28.3	47.7 J	29.3	53.7 J	33.2
7439-89-6	Iron	18300-25400	20000 (L)	mg/kg	22800	20300 J	19800	25300 J	26700
7439-92-1	Lead	7.8-20.9	31 (L)	mg/kg	11.9	40.8 J	10.8	43.2 J	14.2
7439-95-4	Magnesium	3190-5190	NC	mg/kg	6470	6900 J	6160	5880 J	7650
7439-96-5	Manganese	328-647	460 (L)	mg/kg	541	1530 J	654	573 J	802
7439-97-6	Mercury	0.027-0.091	0.15 (L)	mg/kg	0.029 J	ND	0.018 J	ND	0.019 J
7440-02-0	Nickel	15.6-24.5	16 (L)	mg/kg	21.4	27.5 J	18	31.6 J	27.8
7440-09-7	Potassium	734-1530	NC	mg/kg	1180	1370 J	968	1600 J	1500
7440-22-4	Silver	ND-0.5	1 (L)	mg/kg	0.12 J	0.43 J	0.15 J	0.48 J	0.14 J
7440-23-5	Sodium	71.6-790	NC	mg/kg	139 J	813 J	149 J	1410 J	171 J
7440-62-2	Vanadium	14.6-28.4	NC	mg/kg	19.8	53.3 J	15.7	57.5 J	23.1
7440-66-6	Zinc	47.7-118	120 (L)	mg/kg	68.7	178 J	61.6	170 J	78.1

U = Analyte not detected; the number is the analytical reporting limit.
CPAH = Carcinogenic Polynuclear Aromatic Hydrocarbon.
NPAH = Noncarcinogenic Polynuclear Aromatic Hydrocarbon.
J = Estimated Value
ND = Not Detected
C = Benthic Aquatic Chronic Criteria (TOC Adjusted),(NYSDEC, 1999).
L = Lowest Effect Level (metals), (NYSDEC, 1999)
W = Wildlife Bioaccumulation Criteria (TOC Adjusted), (NYSDEC, 1999).
NS = No Standard
N = Presumptive Evidence
NC = No Criteria
(shaded box) - concentration above NYSDEC Sediment criteria and background.

APPENDIX B

HUMAN HEALTH RISK ASSESSMENT FOR AOCs 1 AND 7

(NOTE: THIS IS A COPY OF THE DOCUMENT AS FOUND IN THE 2007 REMEDIAL INVESTIGATION REPORT, WHERE IT WAS DESIGNATED APPENDIX J)

APPENDIX J
HUMAN HEALTH RISK ASSESSMENT AT AOCs 1 & 7 – U.S. ARMY SOUTHERN LANDFILL AND TRIANGULAR DISPOSAL AREA
FORMER SCHENECTADY ARMY DEPOT – VOORHEESVILLE AREA

Prepared For:

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August 2007

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ACRONYMS AND ABBREVIATIONS

AOC	Area of concern
D&D	Construction and Debris
COPC	Chemical of potential concern
CSM	Conceptual site model
DERP-FUDS	Defense Environmental Restoration Program for Formerly Used Defense Sites
DOA	U.S. Department of the Army
DoD	Department of Defense
EIS	Environmental Impact Statement
EPC	Exposure point concentration
GURA	Guilderland Urban Renewal Agency
HHRA	Human health risk assessment
MCL	Maximum contaminant level
MSSL	Medium-specific screening level
NEIP	Northeast Industrial Park
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OSWER	Office of Solid Waste & Emergency Response
PAH	Polynuclear aromatic hydrocarbon
PCB	Polychlorinated biphenyl
PCL	Protective concentration level
PVC	Polyvinylchloride
RAB	Restoration Advisory Board
RAGS	Assessment Guidance for Superfund
RI	Remedial Investigation
SADVA	Schenectady Army Depot, Voorheesville Area
SQL	Sample quantitation limit
SVOC	Semivolatile organic compound
TCE	Trichlorethene
TCEQ	Texas Commission on Environmental Quality
TLC	Target Compound List
TRRP	Texas Risk Reduction Program
UCL	Upper confidence limit (95% UCL)
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
VOC	Volatile organic compound

SECTION J.1

INTRODUCTION

J.1.1 PROJECT BACKGROUND

J.1.1.1 This quantitative human health risk assessment (HHRA) has been prepared by Parsons as part of the Remedial Investigation (RI) for combined Areas of Concern (AOCs) 1 and 7, located near the southeastern boundary of the former Schenectady Army Depot, Voorheesville Area (SADVA). AOC 1 is the former U.S. Army Southern Landfill and AOC 7 is the Triangular Disposal Area. AOCs 1 and 7 are being combined as a single site in this HHRA because the areas are nearly contiguous. The two AOCs are referred to as the “site” or the “area” throughout this HHRA.

J.1.1.2 The specific objective of this quantitative HHRA is to provide a quantitative risk assessment of the soil, groundwater, sediment and surface water at the site. The HHRA will determine if there is potential risk to human health associated with exposure to these environmental media.

J.1.1.3 This HHRA was conducted under the authority of the Defense Environmental Restoration Program for Formerly Used Defense Sites (DERP-FUDS). The SADVA site is DERP-FUDS site number C02NY0002. This HHRA has been prepared to satisfy the U.S. Army Corps of Engineers (USACE) requirements for RI projects. This HHRA is presented as Appendix J to the Parsons RI report and supports the evaluation and conclusions of potential impacts on soil, groundwater, sediment and surface water related to previous SADVA-related activities at the site.

J.1.1.4 Although the HHRA for AOCs 1 and 7 has not been required by the State of New York or by the U.S. Environmental Protection Agency (USEPA), there are numerous guidelines and criteria from the State and the USEPA that are relevant to this HHRA. As described further in this HHRA, the assessment will use applicable guidelines including those provided by the New York State Department of Environmental Conservation (NYSDEC), the New York State Department of Health (NYSDOH), and the USEPA.

J.1.1.5 As an appendix to the Parsons RI for AOCs 1 and 7, this HHRA refers to information provided in the RI report, including figures and tables relevant to the HHRA. The Parsons RI Report contains specific information related to the site history and regulatory status, land use, environmental setting (*e.g.*, surface features, hydrogeology, geology, and soils), and nature and extent of contamination. This HHRA refers to the RI Report for more detailed information as needed. All of the new figures and tables developed for this HHRA, site photographs taken during a site visit performed by the project risk assessment team in July 2006, and selected figures from the RI report are provided at the end of this HHRA.

J.1.2 FACILITY AND SITE DESCRIPTION

J.1.2.1 The former SADVA is located 0.25 miles southeast of the Village of Guilderland Center, New York (Figure J.1). The former SADVA site plan showing AOCs 1 and 7 is provided on Figure J.2. The Department of Defense (DoD) held ownership of the SADVA property from 1941 through 1969. The site was originally constructed as a regulating station and a holding and reconsignment point, and later became a general Army depot. The principal mission of the installation was the receipt, storage, maintenance, and distribution of supply items for the U.S. Department of the Army (DOA).

J.1.2.2 SADVA was closed in 1969 and most of the SADVA property, including AOCs 1 and 7, were sold to the Town of Guilderland Urban Renewal Agency (GURA). GURA leased the property to Galesi Group, Inc., which established the Northeast Industrial Park (NEIP). The NEIP has been in operation as an industrial park since this time. Various open spaces and buildings on the property are leased to tenants. The leased area has been used for manufacturing, maintenance and repair operations, and storage of goods.

Area of Concern 1 – U.S. Army Southern Landfill

J.1.2.3 AOC 1 is the former U.S. Army Southern Landfill (Figure J.3). The site is approximately 10 acres in size and is situated near the southeastern boundary of the former SADVA. There is an approximately two-acre perennial pond located adjacent to the landfill. The landfill rises approximately four to six feet above the pond and swale, and is gently mounded, forming the elongated landfill. The pond has no apparent inlet. The water appears to be sustained by overland flow from topographically higher areas to the east and south, and groundwater seeping from the adjacent landfill mass. When the water level is high enough, the pond drains through a vegetation-choked swale that extends along the eastern edge of the landfill. There are two wetland areas located approximately 200 to 600 feet west of the southwestern end of the landfill. The pond and wetland areas ultimately discharge to Black Creek. Black Creek flows into the Bozenkill, and the Bozenkill flows into Watervliet Reservoir at a point about four miles downstream of AOC 1.

J.1.2.4 The western edge of the landfill tapers into a railroad spur. A dirt road provides access to the landfill from the north and extends to the south end of the landfill. The landfill is covered by a soil layer that supports a variety of vegetation consisting of grass, shrubs, and a few isolated trees. The thickness and nature of the soil cover is inconsistent across the site and there are some areas of sparse vegetation, particularly in the southern portion of the site.

J.1.2.5 Aerial photographs indicated activity at AOC 1 prior to 1942 and extending through 1968, (based on 1942, 1952, 1963, and 1968 aerial photographs). The landfill appeared to be inactive between 1973 and 1995 (based on 1973, 1978, 1982, 1986, and 1995 aerial photographs). Most activities occurred during the time SADVA was operated by the DoD. However, according to a report by the U.S. Army Toxic and Materials Agency (1980), no written records were found that would indicate that disposal of wastes occurred at the former SADVA. It is not unusual for there to be few, if any, written records of waste disposal for sites of this age and type.

J.1.2.6 In 1990, ERM-Northeast conducted investigations for the Galesi Group, owners of NEIP (ERM-Northeast, 1990). Buried drums, construction and demolition (C&D) debris, ash, metal debris, chemical solvent odors, floating product, and oil-saturated sand above the water table were observed in test pits. Test pits and soil borings characterized the nature and extent of the fill. Information from the Malcolm Pirnie RI (1997) indicates that the fill consists of black ash, slag, metallic debris, steel cable, C&D material, wood, asphalt, red brick, black fill, and sludge-like materials. The fill ranges from less than 1 foot thick along the northeastern side to approximately 13 feet thick along the northwestern side. The presence of volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PAHs), and metals in surface soil, subsurface soil and groundwater had been detected, particularly in the southern section, where the fill is approximately 5 feet deep.

J.1.2.7 Photos J.7.1 through J.7.4 show the typical vegetation and land features at AOC 1. These photos were taken during the site visit by the Parsons risk assessment team in July 2006.

Area of Concern 7 – Triangular Disposal Area

J.1.2.8 AOC 7 is a triangular-shaped area located near the southeastern end of the former SADVA and west of AOC 1 (Figure J.3). This area was formerly bounded by railroad tracks on each of the three sides. Aerial photographs from the early 1940s indicate the presence of a possible dump in this triangular area, though no storage containers or debris were noted. It was speculated that the debris had been buried. A 1952 aerial photograph showed the area was inactive and partially vegetated. A review of aerial photographs from 1963, 1968 and 1974 showed some of the tracks had been removed and the site was partially vegetated open space. The site was inactive in a 1977 aerial photograph, but the tracks along the southern and eastern sides of the triangular area had been removed and the area was surrounded by woods on all sides.

J.1.2.9 No previous written documentation has been found to confirm the presence of a dump area, or to indicate the types of materials that may have been disposed at the site. During the 1990s, the USACE conducted geophysical surveys to investigate the presence of subsurface disposal areas. The 1999 geophysical survey showed ground conductivity anomalies, suggesting that subsurface disposal areas or fill material may be present in this AOC. Four probable disposal areas were identified along the northeastern side. Two areas were attributed to buried metallic debris and two areas were attributed to nonmetallic conductive material.

J.1.2.10 The objective of the Parsons RI was to assess the presence or absence of fill materials and to characterize surface soils, subsurface soils, and groundwater. Surface and subsurface soil samples were collected from four test pits that were excavated in the areas where the ground conductivity anomalies had been identified during the 1999 geophysical survey. A small amount of fill was encountered in the test pits. The fill consisted of railroad ties, charred wood, angular gravel, glass bottles, black stain, and asphalt. Groundwater samples were collected in July and August 2000 from three temporary wells and two monitoring wells. Metals concentrations in the groundwater samples from temporary wells may have been affected by high turbidity. Permanent wells were installed and sampled in 2004 and 2006 to improve the integrity of groundwater samples.

J.1.2.11 Photos J.7.5 and J.7.6 show the typical vegetation and land features at AOC 7. These photos were taken during the site visit by the Parsons risk assessment team in July 2006.

J.1.3 RISK ASSESSMENT PROCESS

Summary of Available Data for AOCs 1 and 7

J.1.3.1 This quantitative HHRA for AOCs 1 and 7 uses the results of the data collected for the Parsons RI, the Malcolm Pirnie RI (Malcolm Pirnie, 1997), and other previous investigations that were summarized in the Malcolm Pirnie RI Report. Environmental sampling at the site has included surface soil, subsurface soil, groundwater, sediment, and surface water. Additional groundwater samples were also collected as part of the Parsons RI data gap work in 2004 and 2006. The 2006 data gap work included collecting an additional round of groundwater samples from 11 monitoring wells in the vicinity of AOCs 1 and 7. These samples were collected in June 2006 to provide an updated characterization of the VOC plume previously identified at AOC 1, to confirm the presence or absence of Target Compound List (TCL) VOCs in the vicinity of AOC 7, and to assess the water chemistry parameters related to natural attenuation processes. Additionally, a site visit was performed at AOCs 1 and 7 on July 11, 2006, by a Parsons team involved in the risk assessment process for the site. The site visit verified site characteristics and potential exposure pathways for AOCs 1 and 7.

J.1.3.2 The data for all chemicals detected in each environmental media at AOCs 1 and 7 are provided in data summary tables at the end of this HHRA (Tables J.7.1 through J.7.5).

General HHRA Approach and Guidance Documents

J.1.3.3 Techniques and methodology developed or recognized by the USACE and the USEPA were used for this HHRA. This quantitative HHRA is intended to satisfy USACE requirements for risk assessments during RI projects. As recommended by USACE, the quantitative HHRA uses a risk ratio approach to quantify potential risk. USEPA Region 6 risk-based human health screening values, and other screening values listed below, were used for the risk ratio analyses. NYSDEC human health criteria were qualitatively used in the risk ratio approach but were not used to develop the final risk ratio results. The NYSDEC criteria are not specifically derived for cancer and non-cancer risk assessments and thus these criteria were used for comparison only. The NYSDEC soil criteria are not based on human health effects, and the NYSDEC sediment criteria are based on effects to aquatic life only.

J.1.3.4 The primary resources for conducting this quantitative risk ratio HHRA are listed and described below.

- *Standard Scopes of Work for HTRW Risk Assessments* (USACE, 2001).
- USEPA Region 6 *Human Health Medium-Specific Screening Levels* (USEPA, 2006a). These medium-specific screening levels (MSSL) are available for soil, groundwater, and surface water.

- Technical and Administrative Guidance Memorandum #4046, *Determination of Soil Cleanup Objectives and Cleanup Levels* (NYSDEC, 1994).
- *Surface Water and Groundwater Quality Standards and Groundwater Effluent Limitations* (NYSDEC, 1999).
- Human health-based sediment screening levels are not available from the State of New York or the USEPA. As presented in the HHRA methodology/assumptions, this HHRA uses the Tier 1 sediment protective concentration levels (PCL) developed by the Texas Commission on Environmental Quality (TCEQ) Texas Risk Reduction Program (TRRP), *Determining PCLs for Surface Water and Sediment* (TCEQ, 2006). The sediment PCLs are based on incidental ingestion of sediment and dermal contact with sediment by a residential receptor.
- To evaluate vapor intrusion of shallow groundwater contaminants into buildings, the primary resource included the USEPA (2002) *OSWER Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Subsurface Vapor Intrusion Guidance)*. This document contains target groundwater concentrations that are calculated to correspond to target indoor air concentrations that are protective of human health if vapor intrusion occurs. The target groundwater concentrations are derived to ensure protection of a residential receptor, and thus provide a conservative evaluation for a potential future indoor worker in the area. Based on future land use plans at SADVA, as described in the Northeastern Industrial Park Generic Environmental Impact Statement (NEIP EIS) (Clough, Harbour & Associates LLP, June 2005), the Master Plan indicates office buildings and parking lots may be developed in the area of AOCs 1 and 7. The Plan describes buildings and parking lots consisting of three 20,000 square foot (ft^2) offices and two parking areas with a total of 800 parking spaces. The site will not be converted to residential use, based on information presented in the Master Plan.
- The use of the target groundwater concentrations provides an initial screening for potentially unacceptable risks. If this evaluation shows the potential for unacceptable risk, further work may be necessary at the site. Additional work will follow the *U.S. Army's Interim Vapor Intrusion Policy* (USACE, 2006) and the *USEPA User's Guide for Evaluating Subsurface Vapor Intrusion into Buildings* (USEPA, 2004a). The USEPA methodology uses the Johnson and Ettinger (J&E) model to evaluate vapor intrusion into buildings from groundwater. The New York State guidance documents, *Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York* (NYSDOH, 2006) and DER-13 / *Strategy for Evaluating Soil Vapor Intrusion at Remedial Sites in New York* (NYSDEC, 2006) will also be considered and used, if necessary. Based on the guidance documents from the State of New York, all J&E results must be supported by actual sampling results, such as soil vapor samples, sub-slab vapor samples, crawl space samples, indoor air samples, and outdoor air samples. These types of samples will be required to satisfy New York guidelines.

- The USEPA provides the basic background and approach for performing standard HHRAs (*e.g.*, data evaluation, exposure assessments, *etc*.). General procedures identified in the USEPA's *Risk Assessment Guidance for Superfund* (RAGS) (USEPA, 1989), were also followed for this HHRA in terms of data evaluation, the exposure assessment, and the toxicity assessment. Supplemental USEPA guidelines were also used in conjunction with RAGS.

J.1.4 ORGANIZATION OF HHRA REPORT

The overall risk assessment process consists of four key steps: data evaluation, exposure assessment, toxicity assessment, and risk characterization. These four steps of risk assessment provide the general outline of a quantitative risk assessment report. Because this HHRA uses the risk ratio approach, the outline and overall format is slightly modified from the traditional HHRA. This HHRA is still consistent with USEPA guidelines as presented in *Risk Assessment Guidance for Superfund* (RAGS) (USEPA, 1989) and supporting supplemental guidance including the *Standard Scopes of Work for HTRW Risk Assessments* (USACE, 2001). This HHRA uses the risk ratio approach organized into seven sections, as outlined below.

A.1 Introduction,

A.2 Data Evaluation and Identification of Chemicals of Potential Concern,

A.3 Exposure Assessment,

A.4 Risk Ratio and Screening Criteria Assessment,

A.5 Risk Assessment Results and Uncertainties,

A.6 References, and

A.7 Figures, Site Photographs, and Tables (Data and Risk Calculation Tables).

SECTION J.2

DATA EVALUATION AND IDENTIFICATION OF CHEMICALS OF POTENTIAL CONCERN

J.2.1 INTRODUCTION

J.2.1.1 Several chemicals were identified in the Parsons RI and the Malcolm Pirnie RI (1997) as posing a potential impact on human health. Soil, groundwater, sediment and surface water have been sampled at the site. Sampling results for the chemicals detected in each environmental medium are summarized in Tables J.7.1 through J.7.5. The dates of sample collection are shown in the tables. Samples collected in 1996 were for the Malcolm Pirnie RI. Samples collected prior to 1996 were from previous investigations that were summarized in the Malcolm Pirnie RI Report. Samples collected in 2000 and thereafter are from the Parsons RI and associated Parsons RI data gap work.

J.2.1.2 Samples were analyzed for VOCs, semivolatile organic compounds (SVOC), pesticides, polychlorinated biphenyls (PCB), and metals. Appendix B of the Parsons RI report includes all of the analytical data and data validation reports for samples collected during the Parsons RI. The Malcolm Pirnie RI Report also includes a data validation report. It is assumed that data validation was performed on the data generated during the Malcolm Pirnie RI. It is unlikely that data from earlier investigations had been validated.

J.2.1.3 The Parsons RI and the Malcolm Pirnie RI identified NYSDEC criteria for each of the detected chemicals/metals in each environmental medium. Site-specific background samples were also collected for each environmental medium and were used in conjunction with the NYSDEC criteria to evaluate the nature and extent of contamination. Numerous chemicals/ metals were found to be above the NYSDEC and/or background criteria for soil, groundwater, sediment, and surface water.

J.2.1.4 To provide a more precise estimate of groundwater contamination for this human health risk assessment, each of the monitoring wells and the residential wells located adjacent to the site that were sampled by Albany County Health Department in 1990 were assessed separately (see Table J.7.3a and J.7.3b, respectively, for a data summary).

J.2.2 SCREENING CRITERIA OVERVIEW

J.2.2.1 Based on USEPA RAGS guidance (USEPA, 1989) and supplemental guidance for data evaluation, the chemical of potential concern (COPC) list was refined during an initial screening. One of the screening steps is to eliminate essential nutrients from the HHRA. The essential nutrients calcium, magnesium, potassium, iron and sodium were removed from the list of chemicals included in this HHRA.

J.2.2.2 All other chemicals/metals (hereafter referred to as "chemicals") detected in the Parsons RI and the Malcom Pirnie RI samples were included in the initial screening. As a default step in the screening process, the maximum detected chemical concentrations were used as the exposure point concentrations (EPCs) and those EPCs were compared to background concentrations. Using maximum concentrations provides a conservative (*i.e,.* most health-protective) estimate of exposure to that chemical. For each chemical, if the EPC was greater than the background concentration, it was retained for the risk assessment. If an EPC was less than the background concentration, it was assumed not to pose a potential risk that is attributable to site activities, and was not included in the risk assessment. If no background concentration was available for a chemical, the chemical was retained for the risk assessment. If the initial risk ratio calculations identified a risk for a particular chemical, a 95% upper confidence limit (95% UCL) was calculated (see below for details) to ensure that the one sample with the maximum concentration was not driving the risk. The 95% UCL was used as the EPC and then the EPC was re-screened against the background concentration. The EPC for each chemical, using either the maximum detected concentration or the 95% UCL concentration, are compared to background concentrations on Tables J.7.6 (surface soil), J.7.7 (mixed soil), J.7.8 (sediment), and J.7.9 (surface water). There are no background concentrations available for groundwater.

J.2.2.3 NYSDEC soil, groundwater, sediment and surface water quality criteria were qualitatively used in the risk ratio approach but were not used as the final risk ratio calculations. The NYSDEC criteria are not specifically derived for cancer and non-cancer risk assessments, and thus these criteria were used for qualitative comparison only. For each chemical retained after screening against the background value, the EPC was compared to the NYSDEC criteria, shown in Tables J.7.10 (surface soil), J.7.11 (mixed soil), J.7.12 (sediment), and J.7.13 (surface water). For completeness, the USEPA risk-based soil and surface water criteria (and the TCEQ sediment criteria) are included in the tables. For groundwater, the analytes that exceed the NYSDEC criteria are shown in bold on Tables J.7.3a and J.7.3b.

J.2.3 RISK RATIO APPROACH

J.2.3.1 All chemicals that were retained after the comparison to background concentrations were considered COPC. This quantitative HHRA uses a risk ratio approach to quantify potential cancer risk and non-cancer hazard for each COPC in each contaminated media. The risk ratio method considers risk averaged across an entire exposure area (*e.g.*, surface soil across AOCs 1 and 7) and follows a tiered approach.

J.2.3.2 Initially, maximum detected concentrations were used to calculate risk. Use of maximum concentrations provides a conservative (*i.e.*, most health-protective) estimate of exposure to that chemical. If unacceptable risk is calculated using maximum detected concentrations, then the 95% UCL is calculated and used as the EPC in the risk ratio approach. The 95% UCLs were calculated using the percentile bootstrap method assuming a non-parametric distribution for the particular chemical. This method was performed using USEPA's ProUCL Version 3.0 software (USEPA, 2004b). A minimum of 10 samples is needed for the purposes of calculating the 95% UCL. The data used to calculate UCLs are shown in Tables J.7.1 through J.7.5. For all chemicals that were detected in at least one sample, one half of the detection limit was used as the concentration value in the 95% UCL calculations for samples that were non-detects (laboratory qualifier 'U').

J.2.3.3 For groundwater, different approaches to determining the EPC were used, depending on the number of samples collected from each well. There were 19 residential wells, each with only a single sample. If an analyte was detected, the detected concentration was used as the EPC. There were also 35 non-residential wells, with one, two, or three sampling events at each well.

- For the wells with a single sampling event, the concentration of each detected analyte was used as the EPC.

- For the wells with two sampling events;

  - If an analyte was detected during both sampling events, the average concentration of that analyte was used as the EPC.

  - If an analyte was detected in only one of the two samples, the detected concentration was used as the EPC, even if the detected concentration was lower than the detection limit. In many cases, one-half the detection limit was higher than the detected concentration. Therefore, using an average of the detected concentration and half the detection limit would artificially increase the EPC, and would not be an accurate representation of risk at the well.

- For wells with 3 sampling events, if an analyte was detected in one sample, the detected concentration was used as the EPC. If an analyte was detected in two or three samples from a given well, the data were inspected to determine if the chemical concentration was changing over time. If there was a trend (either upward or downward) in concentration over time, the latest concentration was used as the EPC. If there was no consistent trend over time, the average of the three data points was used as the EPC in risk calculations.

J.2.3.4 In the risk ratio procedure, the ratio of the EPC (as derived following the procedures in the preceding paragraphs) was divided by the appropriate screening level for the environmental medium. As discussed above, the primary criteria for the risk ratio analysis were USEPA Region 6 MSSLs and TCEQ sediment PCLs.

J.2.3.5 After calculating the risk ratios for individual chemicals using the USEPA MSSLs and TCEQ PCLs, the ratios for all the individual chemicals were then summed to determine the cumulative risk for each media. In the first tier, all carcinogenic chemicals were evaluated together, as were all non-carcinogenic chemicals. Carcinogenic risk ratios greater than the upper bound of the CERCLA acceptable risk range, 1.0×10^{-4}, indicate a potentially unacceptable carcinogenic risk. Non- carcinogenic risk ratios greater than 1 (one) also indicate a potentially unacceptable risk. Should the non-carcinogenic chemicals have indicated an unacceptable risk, they would have been evaluated using specific target organs or organ groupings. To estimate the risk associated with multiple non-carcinogenic chemicals, the risks are considered cumulative if the chemicals affect the same target organ. Therefore, if necessary, the target organs would have been identified for all non-carcinogenic chemicals. Although there were some non-carcinogenic risks identified in this HHRA, the risks were primarily driven by only one or two chemicals, and thus the use of target organ groupings would not have added value in this assessment. The primary chemicals driving the non-cancer risk are discussed in Section J.5 (Risk Assessment Results and Uncertainties).

J.2.3.6 Based on USEPA RAGS guidance (USEPA, 1989) and supplemental guidance for data evaluation, the COPC list can be refined during initial screening. One of the steps is to screen essential nutrients from the HHRA. Thus, analytical results for any essential nutrients (*e.g.*, calcium, magnesium, potassium, iron, sodium) were removed from the COPC list and not considered further in this HHRA.

J.2.3.7 In addition to the chemicals eliminated during the initial screening process, another chemical that was not quantified using the risk ratio approach was lead. According to USEPA guidance, lead should be evaluated based on blood lead levels and not the potential for cancer or non-cancer risks. In the absence of blood lead data, lead concentrations detected at the site have been directly compared to the treatment technique action level. For groundwater and surface water, the maximum contaminant level (MCL) for lead is used as the treatment technique action level. For soil, both the commercial/industrial and the residential treatment technique action levels for lead are used. A detailed discussion of the development of the soil lead values is discussed in the USEPA Region 6 *Human Health Medium-Specific Screening Levels* user's guide (USEPA, 2006a). If lead concentrations at the site exceed the criteria, then unacceptable risk may occur. If lead concentrations are lower than the criteria, then there is no unacceptable risk.

J.2.3.8 USEPA guidance also allows elimination of COPCs if they are detected in fewer than 5% of the samples in a particular medium. This requires at least 20 samples. However, detection frequency was only qualitatively reviewed on a case by case basis in this HHRA and only following the risk ratio analysis (*e.g.*, infrequently detected chemicals that are driving an unacceptable risk are identified). Thus, chemicals were not eliminated from the HHRA due to detection frequency. In summary, all COPCs, except essential nutrients and those chemicals with a maximum concentration less than the background concentrations were evaluated in this HHRA.

J.2.3.9 The risk ratio calculations for AOCs 1 and 7 are presented in Tables J.7.14 (surface soil), J.7.15 (mixed soil), J.7.16 (sediment) and J.7.17 (surface water). For the residential wells, risk ratio calculations are presented for each well in Tables J.7.18 through J.7.36. For nonresidential (monitoring) wells, risk ratio calculations are presented for each well in Tables J.7.37 through J.7.66.

J.2.4 SURFACE AND SUBSURFACE SOIL SAMPLES

J.2.4.1 Surface soil samples were collected at various depths during the different investigations, with surface soil sample intervals ranging from zero to two inches, zero to six inches and zero to two feet. Therefore, surface soil at the site is defined as soil collected at depths less than two feet from the surface and include exposure pathways with no, or very minor, soil disturbance (*e.g.*, wind dispersion of surface soil, landscaping/grounds keeping activities in surface soil).

J.2.4.2 Subsurface samples were collected during the various investigations at depths between three and 40 feet. The subsurface sampling results were combined with the surface sampling results to evaluate exposure pathways involving mixed soils (*e.g.*, during land development involving excavation and construction activities). The exposure assessment assumes that surface and subsurface soils are mixed during excavation/construction activities, and that potential exposure occurs to contaminants during the excavation/construction phase, or when contaminants are brought to and deposited near the surface.

J.2.4.3 A total of 19 surface soil samples and 13 subsurface soil samples were collected at AOCs 1 and 7. Tables J.7.1 and J.7.2 of this HHRA further summarize the analytical data for surface soil and mixed (surface/subsurface) soils.

J.2.5 GROUNDWATER SAMPLES

J.2.5.1 A total of 68 groundwater samples were collected from 35 nonresidential wells and 19 residential wells (see Table J.7.3a and J.7.3b, respectively) at and around AOCs 1 and 7. Several of these samples were collected at the same wells during different time frames and not all sampling activities included analyses for a complete suite of analytes. Many samples were single sampling events from individual wells.

J.2.5.2 In the vicinity of AOCs 1 and 7 there is a dense layer of glacial till between the overburden and bedrock water-bearing zones. The glacial till separates the bedrock water-bearing zone from the shallow overburden water-bearing zone. The occurrence and depths to groundwater in the overburden (upper zone/unconfined layer) across SADVA have ranged from 2.5 feet at AOC 5 (in the southern part of SADVA), 23.9 feet at AOC 3 (in the northwest corner of SADVA), to as deep as 67 feet (in the southeast portion of SADVA near AOC 1). The wells are identified in Table J.7.3a and Table J.7.3b as either shallow or bedrock. Many of the samples (mostly within the 1990 and 1996 sample sets) did not indicate the depth of the well to determine whether it was a shallow well or a deeper well. The shallow wells and wells with unknown depths were used in the risk assessment to evaluate the vapor intrusion pathway (*i.e.*, intrusion of VOCs into indoor air from shallow groundwater). Wells with unknown depths were included in the analysis as a conservative approach. EPCs for each well were used as described above.

J.2.6 SEDIMENT SAMPLES

A total of 21 sediment samples were collected at AOC 1. The samples were collected from the wetland areas, pond and drainage areas, a seasonally wet area just west of the access road, and in the intermittently-flooded forested area between AOCs 1 and 7. Table J.7.4 summarizes the analytical data for sediment samples.

J.2.7 SURFACE WATER SAMPLES

J.2.7.1 A total of 12 surface water samples were collected in pond and wetland areas around AOCs 1 and 7. Table J.7.5 of this HHRA summarizes the analytical data for surface water samples.

J.2.7.2 Background surface water samples were collected from Black Creek, upstream of the former SADVA. These upstream locations are south and southwest of AOC 1 as shown on Figure 3.1 of the Parsons RI Report. Three background samples were collected from Black Creek near Route 201 and two additional samples were collected from Black Creek near Route 202 and upstream of Route 202.

J.2.7.3 AOCs 1 and 7 are located within the Black Creek drainage area. The main Black Creek channel is located as much as 1,500 feet west of AOC 1. The Black Creek channel is surrounded by New York State wetland V-19. Wetland V-19 extends east of Black Creek and is adjacent to the western side of AOC 1. There is a pond and seasonally-wet area on the eastern side of AOC 1. This area is connected to wetland V-19 by a drainage ditch.

J.2.7.4 The New York State Bureau of Watershed Management and the NYSDEC have classified the section of Black Creek adjacent to SADVA as a Class C stream. Class C waters are suitable for fishing and fish propagation and primary and secondary recreation, even though other factors may limit the use for that purpose. Individuals were known to withdraw water from Black Creek just south of where Black Creek joins the Bozenkill (Guilderland Water Department, 2000). That stretch of the Black Creek is classified as a Class B waterway by the NYSDEC. Class B waters are considered suitable for primary contact recreation and any other uses except as a source of water supply for drinking, culinary or food processing purposes. Further downstream, the Watervliet Reservoir is a Class A water body which is suitable for drinking water, culinary or food processing purposes, and all other uses. The reservoir is approximately four miles downstream of AOCs 1 and 7, and 2.5 miles downstream of the former SADVA. The Watervliet Reservoir water supply serves a population of over 40,000.

J.2.7.5 For the Parsons RI, surface water sample results are compared to Class A and Class C criteria. The comparison of site samples to Class A criteria has been made for information purposes to address Restoration Advisory Board (RAB) concerns that water in Black Creek makes its way to the Watervliet Reservoir drinking water supply. Thus, for this HHRA, it was assumed that a residential receptor may be exposed to chemicals in the pond and wetland samples based on the connection between these areas and Black Creek, and Black Creek's ultimate connection to the Watervliet Reservoir. This scenario includes ingestion of surface water as drinking water and inhalation of volatiles from use of surface water in the home (*e.g.*, showering, laundering, and dish washing). However, the Watervliet Reservoir is approximately four miles downstream of AOCs 1 and 7 and results for the AOC 8 (Black Creek) HHRA do not indicate an unacceptable risk exists, based on chemicals detected in Black Creek (refer to Appendix K for details).

SECTION J.3

EXPOSURE ASSESSMENT

J.3.1 OBJECTIVE

J.3.1.1 The objective of the exposure assessment is to estimate the type and magnitude of potential exposures to COPCs at the site. The exposure assessment includes identification of potential exposure pathways, receptors, and exposure scenarios, as well as quantification of exposure. Characterization of the exposure setting and identification of all potentially exposed receptors and exposure pathways are discussed in this section. A conceptual site model (CSM) showing results of the exposure assessment is shown on Figure J.7.1 at the end of this section. Quantification of exposure involves quantifying the magnitude, frequency, and duration of exposure for the receptors and exposure pathways of concern.

J.3.1.2 Surface soil, mixed (surface/subsurface) soil, groundwater, sediment and surface water have been evaluated as the environmental media of concern at AOCs 1 and 7. The exposure pathways relevant to the site are described in this exposure assessment and shown in the CSM.

J.3.2 CONCEPTUAL SITE MODEL

J.3.2.1 A CSM is an effective tool for defining site dynamics, streamlining risk assessments, establishing exposure hypotheses, and developing appropriate corrective actions. The CSM for AOCs 1 and 7 is provided on Figure J.4 in Section J.7. CSMs are useful for identifying completed exposure pathways between the contaminated media and potential receptors. The purpose of the CSM is to aid in understanding and describing a site and presents the assumptions regarding:

- Suspected sources and types of contaminants present;
- Contaminant release and transport mechanisms;
- Affected media;
- Potential receptors that could come in contact with site-related contaminants in affected media under current and future land use scenarios; and
- Potential routes of exposure.

J.3.2.2 An overall description of contaminant sources, release mechanisms, and affected media was provided in previous sections. The potential receptors and completed exposure pathways is discussed in the following subsections. Further description of site characterization information is described in the Parsons RI and Malcolm Pirnie RI reports.

J.3.3 POTENTIAL RECEPTORS AND EXPOSURE PATHWAYS

J.3.3.1 Potential human receptors are defined as individuals who may be exposed to site-related contaminants in environmental media. Consistent with USEPA (1989) guidance, current and reasonably anticipated land uses were considered in the receptor selection process.

J.3.3.2 USEPA (1989) defines an exposure pathway as: "The course a chemical or physical agent takes from a source to an exposed organism. An exposure pathway describes a unique mechanism by which an individual or population is exposed to chemicals or physical agents at or originating from a site. Each exposure pathway includes a source or release from a source, an exposure point, and an exposure route. If the exposure point differs from the source, a transport/exposure medium (*e.g.*, air) or media (in cases of intermedia transfer) is also included."

J.3.3.3 A review of potential exposure pathways links the sources, locations, and types of environmental releases with receptor locations and activity patterns to determine the significant pathways of concern.

J.3.3.4 Based on the previous investigations and the site visit by the project team performing the risk assessment for the site, the observations and reasonable assumptions for the potential human receptors for AOCs 1 and 7 are listed below.

- **Current Receptors –** AOCs 1 and 7 are currently vacant and located in a remote area of the NEIP that has limited access. Current NEIP land use includes infrequent visits to the site, such as those that would be performed during site sampling investigations. Incidental ingestion of surface soil, inhalation of volatiles from surface soil, and dermal contact with surface soil by an outdoor worker were assumed. However, this calculation assumes an exposure frequency of 225 days per year and an exposure duration of 25 years. Thus, it provides a very conservative evaluation for a potential current outdoor worker who would have much less exposure. This scenario is still conservative but much more likely for future use of the property as indicated in the NEIP EIS Master Plan (Clough, Harbour & Associates LLP, June 2005). The Master Plan indicates that the area may be used for offices and parking lots. The Plan describes buildings and parking lots consisting of three 20,000 ft^2 offices and two parking areas with a total of 800 parking spaces. The site will not be converted to residential use, based on information presented in the Master Plan.

- **Future Receptors –** Although the site is not residential and will not be converted to residential use based on the Master Plan, a residential pathway was shown for comparative purposes. Thus, incidental ingestion of surface soil, inhalation of volatiles from surface soil, and dermal contact with surface soil by a future resident were calculated. This provides the most conservative risk assessment (*i.e.*, most health protective evaluation) than for other types of receptors. Since this is not a complete exposure pathway, it is considered to be hypothetical and used for comparison only.

Based on future land use plans at NEIP as proposed in the Master Plan, it was assumed that the area could be developed and that future land use may include commercial use of the property (the offices and parking lots described above). The above current receptor evaluation is conservative for the future outdoor worker and thus this did not need to be re-evaluated for the future scenario. The current receptor evaluation is also very protective of a future indoor worker because indoor worker exposure to soils would be much less. Thus, the indoor worker exposure scenario was considered to be conservatively evaluated by the current outdoor worker.

- **Current and Future Residential Exposure to Groundwater –** The site is currently vacant and located in a remote part of the NEIP. The Master Plan indicates proposed commercial use of the land in the future (the offices and parking areas described above). The site will not be converted to residential use, based on information presented in the Master Plan. Although these are the current and foreseen land uses, several other conditions and assumptions were used for the groundwater exposure pathway.

Local shallow groundwater flow at AOC 1 is primarily toward Black Creek (to the west-southwest). At AOC 7, a component of shallow groundwater flow is also to the west-southwest toward Black Creek and the adjoining wetlands. The sites are located near the southeast end of the NEIP. The area surrounding the south and east boundaries of NEIP is composed of agricultural land and scattered residences. However, there are homes and businesses in the nearby off-site areas that may still use wells for drinking water or other purposes. Met Weld Inc. is a manufacturing plant that fabricates and welds fluid processing skids, gas process skids, and stand-alone electrical control buildings. Met Weld Inc. is located east of AOC 1 near the intersection of Ostrander Road and Depot Road (County Route 201). Met Weld Inc. apparently uses groundwater; it has a well that has been periodically tested by the NYSDOH.

Groundwater has been used periodically in the past at the Guilderland Central School for irrigation of school grounds and athletic fields. The school is approximately 1.2 miles from the AOCs 1 and 7 area, and not in the direction of groundwater flow. Most local residents are now on the Town of Guilderland public water supply (Town of Guilderland, 2000). The Town of Guilderland public water supply lines run along Route 201 as far as the railroad tracks west of the intersection of Ostrander Road and Route 201. The NEIP is supplied by the Town of Guilderland Water Department, as are most residents west and south of the area.

The USEPA groundwater MSSL used in the risk ratio analysis assumes residential exposure, and thus provides an estimate of risk to potential residents who may still be using a well. Onsite groundwater data were used in the risk analysis and thus the evaluation assumes that residents are living onsite, or are using site groundwater for drinking. NYSDEC Class GA groundwater standards also provide protection for groundwater designated as a source of drinking water and all other uses.

Residential receptors and exposure pathways are considered to provide a conservative estimate of risk for other potential receptors. For example, ingestion of groundwater by a resident will produce a higher level of risk than ingestion of groundwater by a current and/or future indoor and/or outdoor worker, because residents are expected to ingest more water over a longer period of time than a worker. Thus, worker scenarios for ingestion of groundwater were not evaluated separately because they are assumed to be conservatively evaluated via the residential exposure pathway.

J.3.4 EXPOSURE PATHWAYS

Surface Soil Exposure Pathways

J.3.4.1 All surface soil samples were collected at depths from 0 to 2 feet. Therefore, surface soil at the site is defined as soil collected at depths less than two feet from the surface and includes exposure pathways with no, or very minor, soil disturbance (*e.g.*, general grounds maintenance, sampling investigations). Exposure occurs by direct contact and wind dispersion of contaminants. The receptors and pathways evaluated for surface soil are listed below.

- Incidental ingestion of surface soil, inhalation of volatiles from surface soil, and dermal contact with surface soil by a current outdoor worker. This calculation assumes an exposure frequency of 225 days per year and an exposure duration of 25 years. Thus, it provides a very conservative evaluation for a potential current outdoor worker who, under actual, current conditions, would have much less exposure.

- Incidental ingestion of surface soil, inhalation of volatiles from surface soil, and dermal contact with surface soil by a future outdoor worker. This is a complete exposure pathway but is not included separately in the risk ratio analysis because it is assumed to be conservatively evaluated under the current outdoor worker scenario (based on the exposure frequency and exposure duration).

- Incidental ingestion of surface soil, inhalation of volatiles from surface soil, and dermal contact with surface soil by a future indoor worker. This is a complete exposure pathway but is not included separately in the risk ratio analysis because it is assumed to be conservatively evaluated under the current outdoor worker scenario (future indoor workers would have much less exposure to surface soils than outdoor workers).

- Although the site is not residential and is not planned to be converted to residential use (based on the Master Plan), a residential pathway was shown for comparative purposes. Thus, incidental ingestion of surface soil, inhalation of volatiles from surface soil, and dermal contact with surface soil by a future resident were calculated. This provides the most conservative risk assessment (*i.e.*, most health protective evaluation) than for other types of receptors.

J.3.4.2 The chemicals detected in surface soil are shown in Table J.7.1. The exposure and risk ratio calculations for the surface soil pathway are presented in Table J.7.14.

Mixed Soil Exposure Pathways

J.3.4.3 The subsurface soil sample results were combined with the surface soil sample results to evaluate exposure pathways involving mixed soils (*e.g.*, future land development including excavation activities). The exposure assessment assumes that surface and subsurface soils are mixed during excavation/digging activities, and that potential exposure occurs to contaminants during the excavation/construction phase or to contaminants brought to the surface after excavation and site development. Subsurface samples from the site were collected at depths between three and 40 feet. Thus, the mixed soil interval at the site is zero to 40 feet (the zero to two feet deep surface soils and the three to 40 feet deep subsurface soils).

J.3.4.4 The receptors and pathways evaluated for mixed soil are exactly the same as those listed above for surface soil. They are included below for purposes of completing the CSM.

- Incidental ingestion of mixed soil, inhalation of volatiles from mixed soil, and dermal contact with mixed soil by a current outdoor worker. This calculation assumes an exposure frequency of 225 days per year and an exposure duration of 25 years. Thus, it provides a very conservative evaluation for a potential current outdoor worker who, under actual, current conditions, would have much less exposure.

- Incidental ingestion of mixed soil, inhalation of volatiles from mixed soil, and dermal contact with mixed soil by a future outdoor worker. This is a complete exposure pathway but is not included separately in the risk ratio analysis because it is assumed to be conservatively evaluated under the current outdoor worker scenario (based on the exposure frequency and exposure duration).

- Incidental ingestion of mixed soil, inhalation of volatiles from mixed soil, and dermal contact with mixed soil by a future indoor worker. This is a complete exposure pathway but is not included separately in the risk ratio analysis because it is assumed to be conservatively evaluated under the current outdoor worker scenario (future indoor workers would have much less exposure to mixed soils than outdoor workers).

- Although the site is not residential and is not planned to be converted to residential use (based on the Master Plan), a residential pathway was shown for comparative purposes. Thus, incidental ingestion of mixed soil, inhalation of volatiles from mixed soil, and dermal contact with mixed soil by a future resident where calculated. This provides the most conservative risk assessment (*i.e.*, most health protective evaluation) than for other types of receptors.

J.3.4.5 Chemicals detected in mixed soil are shown in Table J.7.2. Exposure and risk ratio calculations for this pathway are presented in Table J.7.15.

Groundwater Exposure Pathways

J.3.4.6 AOCs 1 and 7 are currently vacant and located in a remote area of the NEIP that has limited access. The site is not expected to be converted to residential land use based on the NEIP Master Plan. The area surrounding the south and east boundaries of the NEIP, close to AOCs 1 and 7, is composed of agricultural land and scattered residences. It is uncertain whether all homes in this area have converted to the Town of Guilderland public drinking water supply. The nearby Met Weld, Inc property has a groundwater supply well that has been tested periodically by the Albany County Health Department. Thus, there are some homes and businesses in this area that may still use private wells for drinking water or other purposes. Groundwater beneath the site is also very shallow and there may be potential for vapor intrusion of contaminants into indoor air (*e.g.*, vapor intrusion into buildings that may be constructed on site or possibly homes/businesses located near the site).

J.3.4.7 Based on these potential exposure scenarios, the groundwater at the site was evaluated for the receptors listed below.

- Ingestion of groundwater as drinking water and inhalation of volatiles from use of groundwater in the home (*e.g.*, showering, laundering, and dish washing) by a current residential receptor. Residential receptors and exposure pathways are considered to provide a conservative estimate of risk for other potential receptors. Thus, ingestion of groundwater by a resident will produce a higher level of risk than ingestion of groundwater by a current and/or future indoor and/or outdoor worker. The worker scenarios may be complete exposure pathways if groundwater was used as drinking water; however, these pathways are not included in the risk ratio analysis because they are assumed to be conservatively evaluated under the residential scenario.

- Inhalation of volatiles (from vapor intrusion of groundwater VOCs into indoor air) by a current resident and a future industrial/commercial worker. These exposure pathways are considered to be potentially complete because groundwater beneath the site is very shallow and VOCs in groundwater could possibly intrude into indoor air. The examples given above include vapor intrusion into future buildings that may be constructed on site or possibly homes/businesses currently located near the site.

J.3.4.8 Chemicals detected in groundwater are shown in Table J.7.3 for the vapor intrusion pathway. The vapor intrusion pathway was assessed for the all the residential wells and for all the nonresidential wells combined. If an unacceptable risk was determined due to vapor intrusion, the well(s) responsible for driving vapor intrusion risk were assessed separately. Exposure and risk ratio calculations for the drinking water pathway in each residential well are presented in Tables J.7.18 through J.7.36. Exposure and risk ratio calculations for the drinking water pathway in each nonresidential (monitoring) well are presented in Table J.7.37 through J.7.66.

Sediment Exposure Pathways

J.3.4.9 Sediment sample results were compared to TCEQ Tier 1 sediment PCLs which are screening values developed to be protective of residential exposure to sediment. Thus, these values are considered to be conservative for current or future workers who might come into contact with contaminated sediment. The worker scenarios may be complete exposure pathways if workers were to come in contact with contaminated sediment; however, these pathways are not separately included in the risk ratio analysis because they are assumed to be conservatively evaluated under the residential scenario.

J.3.4.10 The PCL screening values incorporate incidental ingestion of sediment and dermal contact with sediment. The exposure areas at the site include the wetland areas, an approximately 2-acre perennial pond located adjacent to the landfill, drainage areas, a seasonally wet area just west of the access road, and the intermittently-flooded forested area between AOCs 1 and 7.

J.3.4.11 Chemicals detected in sediment are shown in Table J.7.4. Exposure and risk ratio calculations for the residential sediment exposure pathway are presented in Table J.7.16.

Surface Water Exposure Pathways

J.3.4.12 AOCs 1 and 7 are located within the Black Creek drainage area. The main Black Creek channel is located up to 1,500 feet west of AOC 1, where it is surrounded by New York State wetland V-19. Wetland V-19 extends east of Black Creek and is adjacent to the western side of AOC 1. There is a pond and seasonally-wet area on the eastern side of AOC 1. This area is connected to wetland V-19 by a drainage ditch.

J.3.4.13 The section of Black Creek adjacent to SADVA has been classified by the New York State Bureau of Watershed Management and the NYSDEC as a Class C stream. Class C waters are suitable for fishing and fish propagation and primary and secondary recreation. Black Creek flows north and joins the Bozenkill. Individuals were known to withdraw water from Black Creek just south of its confluence with the Bozenkill (Guilderland Water Department, 2000). That stretch of the Black Creek is classified as a Class B waterway by the NYSDEC. Class B waters are suitable for primary contact recreation and any other uses except as a source of water supply for drinking, culinary, or food processing purposes. Farther downstream, approximately four miles from AOCs 1 and 7, the Watervliet Reservoir is a Class A water body, which is suitable for drinking, culinary or food processing, and all other uses. The Watervliet Reservoir water supply serves a population of over 40,000.

J.3.4.14 Based on land use, the surface water receptors and exposure pathway will be:

- Ingestion of surface water as drinking water and inhalation of volatiles from use of surface water in the home (*e.g.*, showering, laundering, and dish washing) by a current and/or future residential receptor. The residential "tap water" screening level will be used. The residential exposure scenario is protective of other receptor scenarios. Thus, if surface water were to be used by indoor or outdoor workers, the residential values would be protective for the workers. Thus, the potential worker scenarios were not evaluated.

J.3.4.15 Chemicals detected in surface water are shown in Table J.7.5. Exposure and risk ratio calculations for the residential surface water exposure pathway are presented in Table J.7.17.

SECTION J.4

RISK RATIO AND SCREENING CRITERIA ASSESSMENT

J.4.1 SCREENING AND COMPARISON CRITERIA ASSESSMENT

J.4.1.1 The screening criteria assessment considers that if the EPC is less than the background value, there is no risk from that chemical attributable to the site. In addition to essential nutrients being eliminated from this HHRA, the following chemicals were eliminated from further analysis. In surface soil, the following chemical concentrations did not exceed background and were eliminated from further consideration (Table J.7.6):

- Benzo(k)fluoranthene
- 4,4'-DDE
- 4,4'-DDT
- Aluminum
- Antimony
- Arsenic
- Barium
- Beryllium
- Lead
- Manganese
- Mercury
- Selenium
- Thallium
- Zinc

J.4.1.2 In mixed soil, the following chemical concentrations did not exceed background and were eliminated from further consideration (Table J.7.7):

- Benzo(a)pyrene
- Benzo(b)fluoranthene
- Benzo(k)fluoranthene
- 4,4'-DDE
- 4,4'-DDT
- Aluminum
- Antimony
- Arsenic
- Lead

- Manganese
- Mercury
- Selenium
- Thallium
- Zinc

J.4.1.3 In sediment, the following chemical concentrations did not exceed background and were eliminated from further consideration (Table J.7.8):

- Acetone
- Aluminum
- Thallium

J.4.1.4 In surface water, the following chemical concentrations did not exceed background and were eliminated from further consideration (Table J.7.9):

- Aluminum
- Beryllium
- Manganese
- Mercury

J.4.1.5 Tables J.7.10 through J.7.13 show the qualitative comparison of the EPCs for surface soil, mixed soil, sediment and surface water to the NYSDEC screening criteria, as well as the USEPA Region MSSLs and TCEQ PCLs, as appropriate. Tables J.7.3a and J.7.3b show the qualitative comparison of the EPCs for groundwater to the NYSDEC Class GA groundwater quality criteria; concentrations exceeding the criteria are shown in bold. These tables are presented for informational purposes.

J.4.2 RISK RATIO ASSESSMENT

J.4.2.1 The risk ratio method considers risk averaged across an entire exposure area (*e.g.*, surface soil across AOCs 1 and 7) and follows a tiered approach. For the risk ratio assessment for soil, the maximum detected chemical concentrations were the EPCs initially used to calculate risk. Use of maximum concentrations provides the most health-protective estimate of exposure to a particular chemical. If unacceptable risk is calculated based on the maximum detected concentration, then the 95% UCL was calculated and used in the risk ratio approach. This was done to ensure that one sample having the maximum detected concentration was not completely driving the risk calculation. The 95% UCLs were calculated using the percentile bootstrap method, assuming a non-parametric distribution of the particular chemical. This method was performed using USEPA's ProUCL Version 3.0 software (USEPA, 2004b). A minimum of 10 samples was needed to calculate the 95% UCL. A 95% UCL was only calculated for chemicals that have been detected in at least one sample. One-half the sample quantitation limit (SQL) was used as a concentration value for samples in which the chemical was reported as not detected.

J.4.2.2 The EPC for groundwater was the detected concentration, if only one sample was collected in a well. For wells with two sampling events, the average concentration was used as the EPC, unless there was only one detected concentration in the two sampling events. In the latter case, the detected concentration was used as the EPC. In wells with 3 sampling events, for each detected analyte, the data were inspected to determine if there was a consistent downward or upward trend. If there was a consistent downward or upward trend, the latest concentration was used as the EPC. If there were three detected concentrations and no obvious trend, the average concentration was used as the EPC. For wells where a duplicate sample was collected, the highest result of the primary or duplicate sample was used as the EPC.

J.4.2.3 In the risk ratio analysis, the ratio of the EPC was divided by the appropriate screening level for the environmental medium. For soil, the EPC for detected analytes are either the maximum detected concentration or the 95% UCL. For groundwater, the EPCs for each detected analyte in each well are calculated as described above (*e.g.*, the detected concentration, the average concentration, or the latest concentration). If the EPC was within the background range for a particular chemical, the risk ratio was not calculated for that chemical. Background concentrations were available for PAHs, pesticides/PCBs, metals, and other miscellaneous volatile or semivolatile chemicals that are sometimes found in the environment from regional anthropogenic sources. Background concentrations were not available for groundwater.

J.4.2.4 Following calculation of the risk ratios for individual chemicals, the ratios were then summed to determine the cumulative risk. Carcinogenic risk ratios greater than the upper bound of the CERCLA acceptable risk range, 1.0×10^{-4}, indicate a potentially unacceptable carcinogenic risk. Non-carcinogenic risk ratios greater than 1 (one) also indicate a potential unacceptable risk. In the first tier, all carcinogenic chemicals were evaluated together, as were all non-carcinogenic chemicals. Should the non-carcinogenic chemicals have indicated an unacceptable risk, they would have been evaluated using specific target organs or organ groupings. To estimate the risk associated with multiple non-carcinogenic chemicals, the risks are considered cumulative if the chemicals affect the same target organ. Therefore, if necessary, the target organs would have been identified for all non-carcinogenic chemicals. Although there were some non-carcinogenic risks identified in this HHRA, the risks were primarily driven by only a few chemicals, and thus the use of target organ groupings would not add value or additional information to this assessment. The primary chemicals driving the non-cancer risk are discussed in Section J.5 (Risk Assessment Results and Uncertainties).

J.4.3 SCREENING CRITERIA

Soil Screening Criteria

J.4.3.1 The soil sample results were compared to NYSDEC soil criteria, background concentrations, and USEPA soil screening levels (*i.e.*, USEPA soil MSSLs). The NYSDEC-recommended soil cleanup criteria for metals include provisions for using site-specific background concentrations, as well as reference concentrations for eastern U.S. soils. The background metals concentrations were integrated into the NYSDEC soil criteria using the guidance provided by NYSDEC (1994). Thus, the criteria for metals were derived by integrating the NYSDEC criteria with the background concentrations and using the higher of the two concentrations as the screening criteria (NYSDEC, 1994). The higher of the reference eastern U.S. soil concentrations and the site-specific background concentration for each metal was accepted as the "RI background concentration" for comparison purposes in the Parsons RI.

J.4.3.2 Based on the exposure assessment for current and future land use (discussed in Section J.3), the soil risk-based levels from USEPA Region 6 (*i.e.*, the soil MSSLs) were the following:

- Current outdoor industrial (commercial) worker – the risk ratio screening levels are the cancer (corresponding to a risk of 10^{-6}) and non-cancer (HQ=1) values calculated for incidental ingestion of soil, inhalation of volatiles from soil, and dermal contact with soil. These values are very conservative for a current scenario because they are based on an exposure frequency of 225 days and an exposure duration of 25 years. As previously discussed, these values are protective of potential future outdoor or indoor workers.
- Although the site is not residential and is not expected to be converted to residential use, a residential pathway was shown for comparative purposes. Thus, incidental ingestion of soil, inhalation of volatiles from soil, and dermal contact with soil by a future resident where calculated. This provides the most conservative risk assessment (*i.e.*, most health protective evaluation) as compared to other types of receptors.

J.4.3.3 One screening value was derived for the combined exposure routes. Thus, incidental ingestion of soil, inhalation of volatiles from soil, and dermal contact with soil were included as the combined exposure route.

Groundwater Screening Criteria

J.4.3.4 Groundwater results were compared to NYSDEC Class GA groundwater standards (NYSDEC, 1998). Class GA groundwater standards provide protection for groundwater designated as a source of drinking water and all other uses.

J.4.3.5 Based on the exposure assessment for current and future land use, the groundwater risk-based levels from USEPA Region 6 (*i.e.*, the groundwater MSSLs) are those listed below:

- Current residential receptor – the risk ratio screening levels are the cancer (10^{-6}) and non-cancer (HQ=1) "tap water" values calculated for ingestion of groundwater as drinking water, and inhalation of volatiles from use of groundwater in the home (*e.g.*, showering, laundering, and dish washing). Residential receptors and exposure pathways are considered to provide a conservative estimate of risk for other potential receptors. As previously discussed, these values are protective of potential future outdoor or indoor workers.

- Screening criteria to evaluate vapor intrusion of shallow groundwater VOCs into buildings were based on USEPA (2002) target groundwater concentrations. The target groundwater concentrations are calculated to correspond to target indoor air concentrations that are protective of human health if vapor intrusion occurs. As previously discussed, the target groundwater concentrations are derived to ensure protection of a residential receptor, and thus provide a conservative evaluation for a potential future indoor worker. Based on future land use plans as described in the NEIP EIS Master Plan (Clough, Harbour & Associates LLP, June 2005), future land use for AOCs 1 and 7 may include office buildings and parking lots. The site will not be converted to residential use, based on information provided in the Master Plan.

Sediment Screening Criteria

J.4.3.6 The sediment risk-based levels (*i.e.*, sediment Tier 1 PCLs) from TCEQ are based on the following assumption:

- Residential receptor – the risk ratio screening levels are the cancer (10^{-5}) and non-cancer (HQ=1) values calculated for incidental ingestion of sediment and dermal contact with sediment.

J.4.3.7 No PCLs will be developed for indoor and outdoor industrial (commercial) workers. The sediment PCLs are based on residential exposure. Because of the residential-based calculation of the sediment PCLs, the values are very conservative and thus would also be protective for a current outdoor worker or a future outdoor construction worker.

Surface Water Screening Criteria

J.4.3.8 Surface water results were compared to NYSDEC Class A and Class C surface water standards/guidance values (NYSDEC, 1998) and/or background concentrations. AOCs 1 and 7 are located within the Black Creek drainage area. It is unlikely that runoff from AOC 7 would reach Black Creek; the area is flat and there are no ditches draining the AOC 7 area. The main Black Creek channel is located approximately 1,500 feet west of AOC 1. The Black Creek channel is surrounded by New York State wetland V-19. Wetland V-19 extends east of Black Creek and is adjacent to the western side of AOC 1. There is a pond and seasonally-wet area on the eastern side of AOC 1. The pond is connected to wetland V-19 by a drainage ditch.

J.4.3.9 For the Parsons RI, surface water sample results were compared to Class A and Class C criteria. The comparison of site samples to Class A criteria has been made for informational purposes based on RAB concerns that water in Black Creek may make its way to the Watervliet Reservoir drinking water supply.

J.4.3.10 Based on land use, the surface water risk-based levels (*i.e.*, surface water MSSLs) from USEPA Region 6 will be:

- Residential receptor – the risk ratio screening levels are the cancer (10^{-6}) and non-cancer (HQ=1) “tap water” values calculated for ingestion of surface water as drinking water and inhalation of volatiles from use of surface water in the home (*e.g.*, showering, laundering, and dish washing). As previously discussed, residential receptors and exposure pathways are considered to provide a conservative estimate of risk for other potential receptors. Thus, these values are protective for potential future outdoor or indoor workers.

J.4.4 RISK RATIO EQUATIONS

J.4.4.1 Cancer risks were estimated using the following equation. This equation assumes use of maximum concentrations or the 95% UCLs for the EPCs.

$$\text{Cumulative Risk} = \sum (TR)\frac{(EPC_i)}{MSSL_{c-i}}$$

where:

Cumulative Risk	=	Cumulative risk for carcinogenic COPCs one through “i” (unitless), where $(TR)\frac{(EPC_i)}{MSSL_{c-i}}$ is the chemical-specific cancer risk for chemical “i”;
TR	=	Target lifetime excess cancer risk of 10^{-6} (unitless) or 10^{-5} for sediment only;
EPC_i	=	Exposure point concentration for chemical “i” (mg/kg for soil/sediment or µg/L for water); and
$MSSL_{c-i}$	=	USEPA Region 6 (2006a) residential cancer-based medium-specific screening level (MSSL) (mg/kg for soil or µg/L for water) for chemical “i” (for sediment evaluations, the TCEQ PCL is used).

J.4.4.2 Non-cancer risks were estimated using the following equation. This equation assumes use of maximum concentrations or the 95% UCLs for the EPCs.

$$\mathrm{HI} = \sum (THQ)\frac{(EPC_i)}{MSSL_{nc-i}}$$

where:

HI	=	Cumulative hazard index for non-cancer COPCs one through "i" (unitless), where $(THQ)\frac{(EPC_i)}{MSSL_{nc-i}}$ is the chemical-specific non-cancer hazard quotient (HQ) for chemical "i";
THQ	=	Target hazard quotient of one (unitless);
EPC_i	=	Exposure point concentration for chemical "i" (mg/kg for soil/sediment or µg/L for water); and
$MSSL_{nc-i}$	=	USEPA Region 6 (2006a) residential cancer-based medium-specific screening level (MSSL) (mg/kg for soil or µg/L for water) for chemical "i" (for sediment evaluations, the TCEQ PCL is used).

SECTION J.5

RISK ASSESSMENT RESULTS AND UNCERTAINTIES

J.5.1 INTRODUCTION

J.5.1.1 The primary objective of this HHRA was to quantitatively characterize the human health risk associated with current and reasonably expected future exposure to contaminated media at AOCs 1 and 7. As discussed in Section J.3, all potentially complete exposure pathways for the site were evaluated or were assumed to be evaluated based on more protective exposure scenarios (*e.g.*, the residential scenarios provide very conservative estimates for standard worker scenarios). The exposure pathways were outlined in Section J.3 and were also shown on the CSM (Figure J.7.1). The results of the risk ratio quantification are presented in this section.

J.5.2 ESTIMATED RISKS FOR SURFACE SOIL

J.5.2.1 The calculated risks for surface soil are shown in Table J.7.14.

J.5.2.2 No unacceptable risks were calculated for the non-carcinogenic COPCs in the surface soils at AOCs 1 and 7. The cumulative non-carcinogenic risk ratio results were 0.94 and 0.26 for the residential and industrial receptors, respectively. These results are below the cumulative risk ratio threshold of 1 (one) indicating no unacceptable risk is expected.

J.5.2.3 No unacceptable risks were calculated for the carcinogenic COPCs in the surface soils at AOCs 1 and 7. The cumulative carcinogenic risk ratios were 3.1×10^{-5} and 1.0×10^{-5} for residential and industrial receptors, respectively. These results are within the acceptable range of 1×10^{-4} and 1×10^{-6}.

J.5.3 ESTIMATED RISKS FOR MIXED SOIL

J.5.2.4 The calculated risks for mixed soil are shown in Table J.7.15.

J.5.2.5 As with surface soils at AOCs 1 and 7, no unacceptable risks were calculated for the non-carcinogenic chemicals detected in the mixed soils at the site. The cumulative non-carcinogenic risk ratio results were 0.72 and 0.16 for the residential and industrial receptors, respectively. These results are well below the cumulative risk ratio of one, indicating no unacceptable risk occurs for the mixed soil exposure pathways.

J.5.2.6 Similar to surface soil, there were no unacceptable risks associated with carcinogenic chemicals in mixed soils at AOCs 1 and 7. The cumulative risk ratios for carcinogenic chemicals were 1.7×10^{-5} and 6.4×10^{-6}, which are within the acceptable range of 1×10^{-4} and 1×10^{-6}.

J.5.4 ESTIMATED RISKS FOR GROUNDWATER USED AS DRINKING WATER

J.5.2.7 The calculated risks for groundwater were evaluated for each individual well. There were no background concentrations available for groundwater, so the results are qualitatively compared to NYSDEC Class GA criteria prior to the risk ratio calculations, as shown in Tables J.7.3a (nonresidential wells) and J.7.3b (residential wells). No analytes were eliminated from consideration in the SLRA.

Residential Wells

J.5.3.1 Tables J.7.18 through J.7.36 present the results of the risk ratio calculations for each of the residential wells. For all of the residential wells except well E5306 (Table J.7.35, discussed below), there were no unacceptable carcinogenic risks associated with contaminants in the wells. The highest carcinogenic risk for any of the residential wells was 1.1×10^{-6}, which is less than the upper end of USEPA's acceptable risk range of 1.0×10^{-4}. The highest cumulative non-carcinogenic risk for any of the residential wells is 0.11, which is significantly less than one, indicating that there is no unacceptable non-carcinogenic risk in any of the residential wells.

J.5.3.2. For well E5306, the cumulative non-carcinogenic risk (0.0015) is less than one, indicating no unacceptable non-carcinogenic risks. The cumulative carcinogenic risks in well E5306 were 1.8×10^{-4}, which is greater than the upper end of USEPA's acceptable risk range of 1.0×10^{-4}. The chemical that is driving the cumulative risk in this well is arsenic, with a detected concentration of 7.9 µg/L. The guidelines of the Safe Drinking Water Act as developed by the USEPA sets a drinking water standard for arsenic at 10 µg/L The safe water drinking water standard is higher than the detected concentration of arsenic at well E5306, indicating that the detected concentration of arsenic in this well is less than the concentration of arsenic allowed in drinking water.

J.5.3.3 Lead is not assessed in the cumulative risk ratios described above, but is assessed individually. There was lead detected in only one residential well, E4880 (Table J.7.31). The detected concentration of lead in well E4880 exceeded the USEPA screening value by a factor of 3.3, indicating that there is a potential for an unacceptable risk due to lead in well E4880. This well was only sampled in 1990, and it is not known if lead has attenuated in the well since that sampling event. Additionally, well construction was not reviewed to determine if lead pipe was used in the construction of the well. .

Nonresidential Wells

Tables J.7.37 through J.7.66 present the results of the risk ratio calculations for each of the nonresidential (monitoring) wells. Because of the large number of wells, the results of groundwater analyses at nonresidential wells will be further divided into those wells with calculated non-carcinogenic risk, carcinogenic risk, and risks due to lead.

Non-carcinogenic Risks in Nonresidential Wells

Five nonresidential wells have cumulative non-carcinogenic risks greater than one.

- Well MW-AMW1 (Table J.7.38) has a cumulative non-carcinogenic risk ratio value of 1.6, primarily due to the presence of the VOC cis-1,2-dichlorethene (risk ratio = 1.4). The EPC for cis-1,2-dichlorethene is based on one sample collected in 1996, and because no additional samples have been collected, it is not known if attenuation has occurred at this well.

- Well MW-AMW11 (Table J.7.40) has a cumulative non-carcinogenic risk ratio value of 1.6, primarily due to the presence of several metals (aluminum, antimony, selenium, and vanadium). The EPC for each of the metals is based on 2 samples, which were averaged to determine the final EPC. In all cases, the concentration in the second sample (collected in 2004) was less than the concentration in the first sample (collected in 2001), but without at least one additional sample, it cannot be definitively determined if this is attenuation of contaminant concentrations or simply variation in contaminant concentrations.

- Well AOC7-2AMW-7 (Table J.7.58) has a cumulative non-carcinogenic risk ratio value of 1.8, primarily due to the presence of manganese in the sample. The EPC for manganese is the highest value of the primary and duplicate sample collected in 2000. There is potentially human health risk at this well due to exposure to manganese in drinking water. Since no additional samples have been collected in this well, it is not known if concentrations of manganese have attenuated at this well.

- Well AOC7-HP02 (Table J.7.61) has a cumulative non-carcinogenic risk ratio value of 31, primarily due to the presence of several metals (aluminum, manganese, nickel, thallium and vanadium). The EPC for each of the metals is the detected concentration based on a single sampling event, collected in 2000. This was a temporary wellpoint sample that was suspected to have elevated turbidity; as a result, a permanent well was installed near this location (GW03) and there was no unacceptable risk in that well.

- Well AOC7-HP03 (Table J.7.62) has a cumulative non-carcinogenic risk ratio value of 1.5, primarily due to the presence of two metals (aluminum and manganese). The EPC for each of the metals is the detected concentration based on a single sampling event in 2000. This was a temporary wellpoint sample that was suspected to have elevated turbidity; as a result, a permanent well was installed near this location (GW02) and there was no unacceptable risk in that well.

Carcinogenic risks in nonresidential wells.

Eighteen nonresidential wells have calculated carcinogenic risk values greater than the upper bound of the CERCLA risk range of 1.0×10^{-4}.

- Well MW-ACE2 (Table J.7.37) has a cumulative carcinogenic risk ratio of 1.7×10^{-2}, primarily due to the VOCs trichloroethene (6×10^{-3}) and vinyl chloride (1.1×10^{-2}), and the metal arsenic (1.3×10^{-4}). The EPC for trichloroethene is based on the average of three sampling events. The first sampling event had a higher concentration than the third (and latest) event, but the second sample collected exhibited a higher concentration than the other two samples. Therefore, there was no obvious trend in the data, and the average was used as the EPC. Additional sampling at the well may reveal that natural attenuation has occurred in the well. A downward trend was observed for vinyl chloride; therefore, the EPC is based on the latest value, indicating that natural attenuation may have occurred in this well. The EPC for arsenic is based on the only sample analyzed for metals collected in 1996 (6 µg/L). The Safe Drinking Water standard of 10 µg/L is greater than the maximum concentration of arsenic in this well, indicating that the detected concentration of arsenic in this well is less than the concentration allowed in drinking water.

- Well MW-AMW1 (Table J.7.38) has a cumulative carcinogenic risk ratio of 1.5×10^{-3}, primarily from the VOC vinyl chloride (1.4×10^{-3}). A downward trend was observed for vinyl chloride; therefore, the EPC is based on the latest value of three sampling events, indicating that natural attenuation may be occurring.

- Well MW-AMW11 (Table J.7.40) has a cumulative carcinogenic risk ratio of 1.6×10^{-3}, primarily due to the presence of arsenic. The EPC is based on the average concentration of two sampling events. The concentration of arsenic in the first sampling event (collected in 2001) is larger than the concentration in the second event (collected in 2004), but without additional sampling, a trend of natural attenuation cannot be verified. Further, the concentration in the second sample collected (15.9 µg/L) is greater than the safe drinking water standard of 10 µg/L, indicating there may be potential risk due to exposure to arsenic in the groundwater at this well.

- Well AMW-104, a duplicate sample from AMW-1, (Table J.7.43) has a cumulative carcinogenic risk ratio of 2.4×10^{-4}, primarily due to the presence of the VOC vinyl chloride (2.3×10^{-4}). The EPC is based on a single sampling event (collected in 2006). There may be a potential risk due to exposure to VOCs in the groundwater at this well.

- Well MW-ACE4 (Table J.7.46) has a cumulative carcinogenic risk ratio of 2.2×10^{-4}, due to the presence of arsenic. The EPC for arsenic is based on a single sampling event (collected in 1996). The detected concentration is 10 µg/L, which is equal to the safe drinking water standard of 10 µg/L. Therefore, the detected concentration of arsenic is equal to what would be allowed in drinking water.

- Well MW-ACE3 (Table J.7.47) has a cumulative carcinogenic risk ratio of 1.1×10^{-4}, due to the presence of arsenic. The EPC for arsenic is based on a single sampling event (collected in 1996). The detected concentration of 5 µg/L is less than the safe drinking water standard of 10 µg/L, indicating that the detected concentration of arsenic would be allowed in drinking water.

- Well MW-2-2 (Table J.7.48) has a cumulative carcinogenic risk ratio of 1.3×10^{-4}, due to the presence of arsenic. The EPC for arsenic is based on a single sampling event (collected in 1996). The detected concentration of 6 µg/L is less than the safe drinking water standard of 10 µg/L, indicating that the detected concentration of arsenic would be allowed in drinking water.

- Well MW-2AMW8 (Table J.7.52) has a cumulative carcinogenic risk ratio of 1.8×10^{-3}, due to the presence of arsenic. The EPC for arsenic is based on a single sampling event (collected in 1996). The detected concentration of 82 µg/L is much greater than the safe drinking water standard of 10 µg/L, indicating there may be adverse effects to humans from exposure to arsenic at this well.

- Well MW-2AMW3 (Table J.7.53) has a cumulative carcinogenic risk ratio of 1.1×10^{-4}, due to the presence of arsenic. The EPC for arsenic is based on a single sampling event (collected in 1996). The detected concentration of 5 µg/L is less than the safe drinking water standard of 10 µg/L, indicating that the detected concentration of arsenic would be allowed in drinking water.

- Well MW-1 (Table J.7.54) has a cumulative carcinogenic risk ratio of 1.5×10^{-4}, due to the presence of arsenic. The EPC for arsenic is based on a single sampling event (collected in 1988). The detected concentration of 6.6 µg/L is less than the safe drinking water standard of 10 µg/L, indicating that the detected concentration of arsenic would be allowed in drinking water.

- Well MW-2 (Table J.7.55) has a cumulative carcinogenic risk ratio of 6.9×10^{-4}, due to the presence of arsenic. The EPC for arsenic is based on a single sampling event (collected in 1988). The detected concentration of 31 µg/L is greater than the safe drinking water standard of 10 µg/L, indicating there may be adverse effects to humans from exposure to arsenic at this well. Since no additional samples have been collected in this well, it is not known if concentrations of arsenic are attenuating.

- Well MW-3 (Table J.7.56) has a cumulative carcinogenic risk ratio of 6.2×10^{-4}, primarily due to the presence of arsenic. The EPC for arsenic is based on a single sampling event (collected in 1988). The detected concentration of 28 µg/L is greater than the safe drinking water standard of 10 µg/L, indicating there may be adverse effects to humans from exposure to arsenic at this well. Since no additional samples have been collected in this well, it is not known if concentrations of arsenic are attenuating.

- Well MW-4 (Table J.7.57) has a cumulative carcinogenic risk ratio of 5.1×10^{-4}, due to the presence of arsenic. The EPC for arsenic is based on a single sampling event (collected in 1988). The detected concentration of 23 µg/L is greater than the safe drinking water standard of 10 µg/L, indicating there may be adverse effects to humans from exposure to arsenic at this well. Since no additional samples have been collected in this well, it is not known if concentrations of arsenic are attenuating.

- Well AOC7-2AMW-5 (Table J.7.59) has a cumulative carcinogenic risk ratio of 3.3 x 10^{-4}, due to the presence of arsenic and bis(2-ethylhexyl)phthalate. The EPC for both chemicals is based on a single sampling event (collected in 2000). The chemical bis(2-ethylhexyl)phthalate is a common laboratory contaminant that may have been detected due to contamination of the sample at the laboratory. The detected concentration of arsenic of 14.7 µg/L is greater than the safe drinking water standard of 10 µg/L, indicating there is may be adverse effects to humans from exposure to arsenic at this well. Since no additional samples have been collected in this well, it is not known if concentrations of arsenic are attenuating.

- Well AOC7-HP01 (Table J.7.60) has a cumulative carcinogenic risk ratio of 1.2 x 10^{-4}, due to the presence arsenic and bis(2-ethylhexyl)phthalate. The EPC for both chemicals is based on a single sampling event (collected in 2000). The chemical bis(2-ethylhexyl)phthalate is a common laboratory contaminant that may have been detected due to contamination of the sample at the laboratory. The detected concentration of arsenic of 4.8 µg/L is less than the safe drinking water standard of 10 µg/L, indicating that the detected concentration of arsenic would be allowed in drinking water.

- Well AOC7-HP02 (Table J.7.61) has a cumulative carcinogenic risk ratio of 4.6 x 10^{-3}, primarily due to the presence of arsenic. The EPC for arsenic is based on a single sampling event (collected in 2000). The detected concentration of 207 µg/L is much greater than the safe drinking water standard of 10 µg/L. This was a temporary wellpoint sample that was suspected to have elevated turbidity; as a result, a permanent well was installed near this location (GW03) and there was no unacceptable risk in that well.

- Well AOC7-HP03 (Table J.7.62) has a cumulative carcinogenic risk ratio of 2.3 x 10^{-4}, primarily due to the presence of arsenic. The EPC for arsenic is based on a single sampling event (collected in 2000). The detected concentration of 10.2 µg/L is slightly greater than the safe drinking water standard of 10 µg/L. This was a temporary wellpoint sample that was suspected to have elevated turbidity; as a result, a permanent well was installed near this location (GW02) and there was no unacceptable risk in that well.

- Well SC-2AMW5-AOC1 (Table J.7.64) has a cumulative carcinogenic risk ratio of 2.6 x 10^{-4}, primarily due to primarily due to the presence of arsenic and bis(2-ethylhexyl) phthalate. The EPC for both chemicals is based on a single sampling event (collected in 2000). The chemical bis(2-ethylhexyl) phthalate is a common laboratory contaminant and may have been detected due to contamination of the sample at the laboratory. The detected concentration of arsenic at 11.6 µg/L is greater than the safe drinking water standard of 10 µg/L, indicating there may be adverse effects to humans from exposure to arsenic at this well. Since no additional samples have been collected in this well, it is not known if concentrations of arsenic are attenuating.

Risks of lead in nonresidential wells

Lead was detected in 14 nonresidential wells. However, for only 5 wells was the risk ratio for lead greater than one. Therefore, there are not likely to be adverse effects on humans due to exposure to lead in wells MW-AMW1 (Table J.7.38), MW-AMW2 (Table J.7.39), MW-AMW11 (Table J.7.40), MW-2AMW3 (Table J.7.53), MW-1 (Table J.7.54), AOC7-2AMS-7 (Table J.7.58), AOC7-2AMW-5 (Table J.7.59), AOC7-HP01 (Table J.7.60), AOC7-HP02 (Table J.7.60), or SD-2AMW5-AOC1 (Table J.7.64). Lead concentrations in the remaining wells are assessed below:

- Well MW-ACE2 (Table J.7.37) has detection of lead of 79 µg/L, which exceeded the USEPA screening value by a factor of 5.2, indicating that there is a potential for an unacceptable risk due to lead in this well.

- Well MW-2 (Table J.7.55) has detection of lead of 90 µg/L, which exceeded the USEPA screening value by a factor of 6.0, indicating that there is a potential for an unacceptable risk due to lead in this well.

- Well MW-3 (Table J.7.56) has detection of lead of 66 µg/L, which exceeded the USEPA screening value by a factor of 4.4, indicating that there is a potential for an unacceptable risk due to lead in this well.

- Well MW-4 (Table J.7.57) has detection of lead of 69 µg/L, which exceeded the USEPA screening value by a factor of 4.6, indicating that there is a potential for an unacceptable risk due to lead in this well.

- Well AOC7-HP02 (Table J.7.61) has detection of lead of 388 µg/L, which exceeded the USEPA screening value by a factor of 25.86, indicating that there is a potential for an unacceptable risk due to lead in this well. This was a temporary wellpoint sample that was suspected to have elevated turbidity; as a result, a permanent well was installed near this location (GW03) and there was no unacceptable risk in that well.

J.5.2.13 An uncertainty associated with the groundwater risk ratio results is that, in most cases, there was a single sampling event, and therefore the detected concentration of each chemical was used as the EPC and compared to the USEPA “tap water” MSSLs. Without additional samples, there is no way to determine if natural attenuation of chemicals in wells has occurred.

J.5.2.14 Another uncertainty associated with the groundwater risk ratio results is that the residential exposure pathway is extremely unlikely. Most of the homes in the area have converted to the Town of Guilderland public drinking water supply. However, the area consists of scattered country homes and it is uncertain whether all homes in this area have converted to public water. Thus, there may be some homes and businesses in this area that may still use private wells for drinking water or other purposes. Additionally, as previously discussed, the site is not proposed for residential development. Based on the NEIP EIS Master Plan, future land use includes proposed office buildings and parking lots (Clough, Harbour & Associates LLP, June 2005).

Estimated Risks and Uncertainties for Vapor Intrusion of Groundwater into Indoor Air

J.5.2.15 Groundwater beneath the site is very shallow and there may be potential for vapor intrusion of contaminants into indoor air. Thus, future buildings that may be constructed on site or possibly homes/businesses located near the site may be susceptible to vapor intrusion. The deeper bedrock and upgradient well locations were not included in the evaluation. Table J.7.3 shows which samples are the shallow samples, the bedrock samples, and the upgradient samples.

J.5.2.16 Screening criteria to evaluate vapor intrusion of shallow groundwater VOCs into buildings were based on USEPA (2002) target groundwater concentrations. The target groundwater concentrations are calculated to correspond to target indoor air concentrations that are protective of human health if vapor intrusion occurs. Table J.7.3 compares detected concentrations to screening criteria. In the vapor intrusion analysis, five VOCs were found to be above the target screening value. The five chemicals were 1,2-dichloroethane (1,2-DCA), *trans*(1,2)dichloroethene (*trans*-1,2-DCE), *cis*(1,2)dichloroethene (*cis*-1,2-DCE), TCE, and vinyl chloride. Only one well had the highest concentrations of these chemicals, which also were the concentrations that exceeded the target screening value for groundwater to indoor air. This well was identified as MW-ACE2 (sampled in July 1996) and also identified as ACE-2 (sampled in June 2000 and June 2006). Most of the exceedances of the target screening values were related to the 1996 sampling event. The 2000 sampling event still had high concentrations for three VOCs (*trans*-1,2-DCE, TCE, and vinyl chloride). When this well was sampled in June 2006, concentrations were all lower, but there were still the same three VOCs above the target screening values (*trans*-1,2-DCE, TCE, and vinyl chloride).

J.5.2.17 There are several levels of uncertainty associated with this exposure pathway analysis. The target screening values are a first-step approach to evaluating chemicals that may pose a risk due to the vapor intrusion pathway. The State of New York guidance documents, *Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York* (NYSDOH, 2006) and DER-13 / *Strategy for Evaluating Soil Vapor Intrusion at Remedial Sites in New York* (NYSDEC, 2006) need to be followed to satisfy New York State guidelines. As discussed in previous sections of this HHRA, the guidance documents from the State of New York require all sites with groundwater contamination to perform air sampling for the vapor intrusion pathway. Therefore, any results from a target screening approach (used in this HHRA) or from modeling approaches (such as the J&E model) must be supported by air sampling results. Such sampling may include soil vapor samples, sub-slab vapor samples, crawl space air samples, indoor air samples, and outdoor air samples.

J.5.2.18 According to the USACE policy for vapor intrusion, *U.S. Army's Interim Vapor Intrusion Policy* (USACE, 2006), the Army would accept modeling for cases where the future construction of a building may take place at a site. If the modeling indicated a potential risk, the Army may chose to amend its installation management plan or file a deed notice in accordance with State law. Such forms of notice would notify Army employees, contractors and others that the issue of vapor intrusion must be considered if a building is to be constructed on the site in question.

J.5.2.19 Another level of uncertainty is that the target screening concentrations are derived to ensure protection of a residential receptor, and thus provide an overly conservative evaluation for the current and/or future worker exposure scenarios expected for the site.

Estimated Risks for Sediment

J.5.2.20 The calculated risks for sediment are shown in Table J.7.16 (Risk Ratio Calculations for Sediment).

J.5.2.21 As shown in the risk calculation table, there are no non-carcinogenic or carcinogenic risks associated with the sediments at AOCs 1 and 7. The non-carcinogenic risk ratio result for the site is 0.73 and the carcinogenic risk ratio result is 7.8×10^{-6}. These values are lower than the acceptable thresholds of one (non-carcinogenic) and 1×10^{-4} (carcinogenic), and thus indicate that there is no unacceptable risk due to exposure to sediments.

Estimated Risks and Uncertainties for Surface Water

J.5.2.22 The calculated risks for surface water are shown in Table J.7.17 (Risk Ratio Calculations for Surface Water).

J.5.2.23 Risk calculations indicate that there may be potential for non-carcinogenic and carcinogenic risk for the surface water exposure pathways at the site. The non-carcinogenic risk was 1.7 and was primarily due to exposure to cadmium in pond water. The carcinogenic risk was 2.8×10^{-4} and was primarily due to exposure to TCE, BEHP, and arsenic in pond water.

J.5.2.24 These results are very conservative and overestimate potential risk; thus, it is very unlikely that surface water poses a potential risk. There are several factors in this HHRA that overestimate potential risk. Surface water sampling results were compared to the USEPA "tap water" MSSLs. These MSSLs assume residential exposure to surface water used as drinking water and inhalation of volatiles from use of surface water in the home (*e.g.*, showering, laundering, and dish washing). The comparison of pond samples to residential criteria was made for informational purposes based on RAB concerns that water in Black Creek may make its way to the Watervliet Reservoir drinking water supply. The pond water has no known use, including use as drinking water. It is possible for pond water to flow through a ditch to the wetland and possibly to Black Creek. A separate HHRA completed for surface water in Black Creek showed no unacceptable risk exists.

J.5.2.25 A total of 12 surface water samples were collected for the site. It is noted that of these 12 samples, the contaminants were not frequently detected. Although lead was detected at seven locations and BEHP was detected at three locations, TCE, arsenic, and cadmium were only detected at one location each. The single detections of TCE and cadmium were from the same sampling location (SW-4 in the pond). Thus, there was only a single detection of cadmium that was driving the risk. No sampling has been performed for surface water at AOCs 1 and 7 since July 2000. Lead values were only high in the samples collected in 1988. Since that time lead levels have been below the "tap water" MSSLs. Lead in surface water does not present a risk for the site. *Bis*(2-ethylhexyl)phthalate was not included in surface water analyses prior to the July 2000 samples. Thus, the three detections occurred in the 2000 data set (which included only four samples). Although BEHP was detected in three of the four surface water samples, it is not unusual to detect this phthalate in environmental media. BEHP is a common laboratory contaminant and phthalates are prevalent in the environment because of their use in plastics such as polyvinylchloride (PVC).

SECTION J.6

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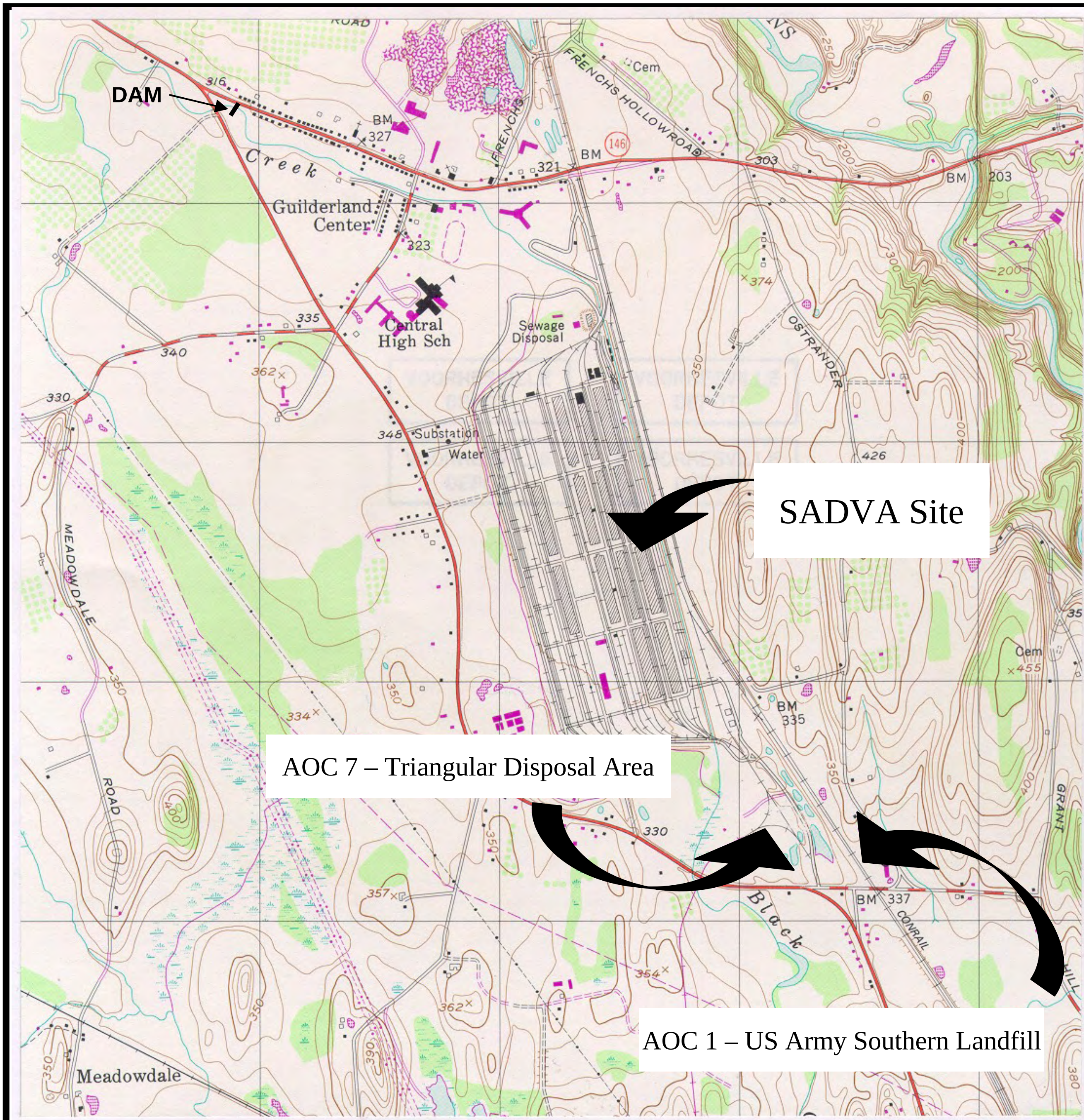
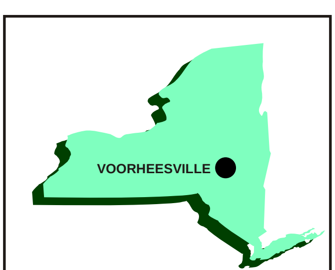
SECTION J.7

FIGURES, SITE PHOTOGRAPHS, AND TABLES (DATA AND RISK CALCULATION TABLES)





New York
Quadrangle

N

LATITUDE: N42° 15' 20"
LONGITUDE: W75° 14' 38"

2000 1000 0

Approximate Scale in Feet

FIGURE J.1

SADVA
GUILDERLAND, NEW YORK

SITE VICINITY

PARSONS

290 ELWOOD DAVIS ROAD, SUITE 312, LIVERPOOL, NY 13088 PHONE: (315) 451-9560

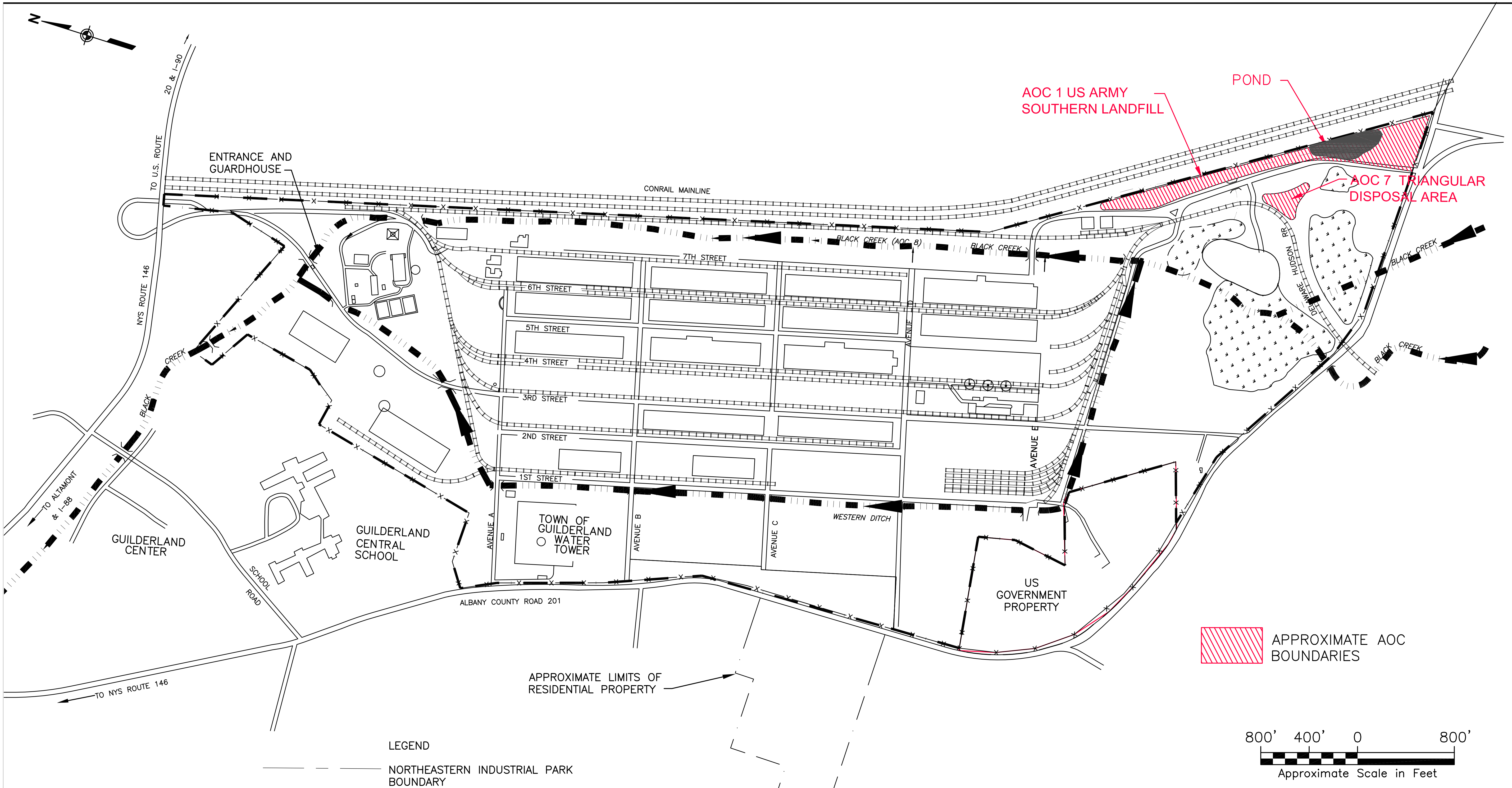


FIGURE J.2

FORMER SADVA
GUILDERLAND, NEW YORK

FORMER SADVA SITE PLAN

PARSONS
290 ELWOOD DAVIS ROAD, SUITE 312, LIVERPOOL, N.Y. 13088, PHONE: 315-451-9560

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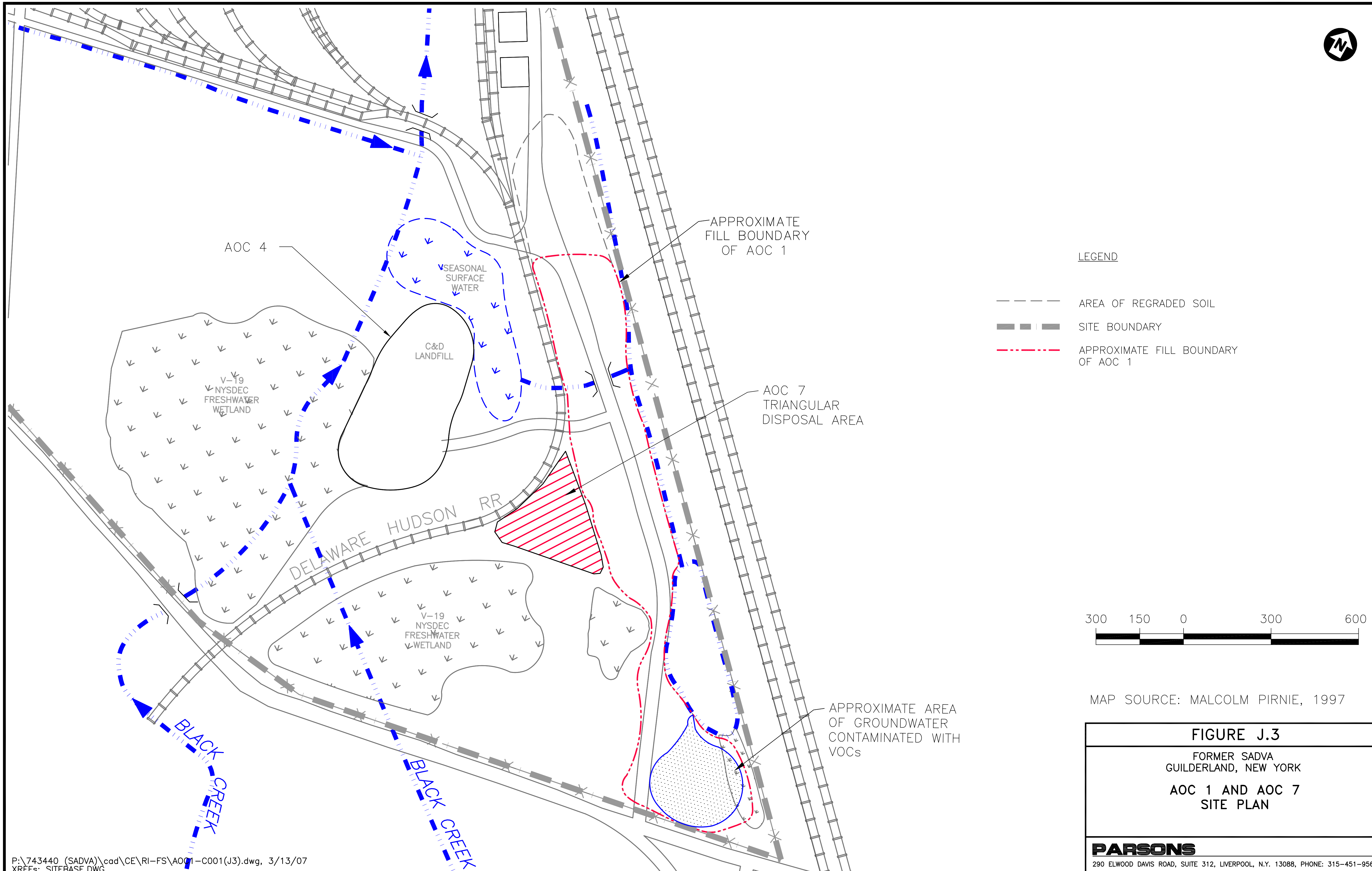

FIGURE J.3

FORMER SADVA
GUILDERLAND, NEW YORK

AOC 1 AND AOC 7
SITE PLAN

PARSONS
290 ELWOOD DAVIS ROAD, SUITE 312, LIVERPOOL, N.Y. 13088, PHONE: 315-451-9560

Figure J.4 Human Health Conceptual Site Model

Potential Medium of Concern	Potential Route of Exposure	Potentially Exposed Population	Pathway Completeness and Assumptions
Soil (Surface and/or Mixed Soil)	• Incidental ingestion of surface/mixed soil • Inhalation of volatiles from surface/mixed soil • Dermal contact with surface/mixed soil	• Current outdoor worker • Future outdoor worker • Future indoor worker • Current/future resident	• Current outdoor worker is a complete exposure pathway. An exposure frequency of 225 days per year and an exposure duration of 25 years are assumed for this scenario. Thus, it is a very conservative (protective) evaluation for a potential current outdoor worker who would have much less exposure (*e.g.*, current worker that visits the site to perform site sampling activities). • Future outdoor worker is a complete exposure pathway. The Master Plan indicates proposed office buildings and parking lots for the area, consisting of three 20,000 ft^2 offices and two parking lots with 800 parking spaces. This pathway is not included in the risk ratio analysis because it is assumed to be conservatively evaluated under the current outdoor worker scenario (based on the exposure frequency and exposure duration). • Future indoor worker is a complete exposure pathway (based on Master Plan). This pathway is not included in the risk ratio analysis because it is assumed to be conservatively evaluated under the current outdoor worker scenario (future indoor workers would have much less exposure to surface and/or mixed soils). • Although the site is not residential and will not be converted to residential use (based on the Master Plan), a residential pathway was shown for comparative purposes. This provides the most conservative risk assessment (*i.e.*, most health protective evaluation) than for other types of receptors.

Figure J.4 continued

Groundwater	• Ingestion of groundwater as drinking water • Inhalation of groundwater from use of groundwater in the home (*e.g.*, showering, laundering, and dish washing) • Inhalation of volatiles due to vapor intrusion of VOCs from shallow groundwater into indoor air	• Current outdoor worker • Future outdoor worker • Future indoor worker • Current/future resident	• The area surrounding the south and east boundaries of the former SADVA, close to AOCs 1 and 7, is composed of agricultural land and scattered country homes. It is uncertain whether all homes in the area have converted to the Town of Guilderland public drinking water supply. Thus, there may be some homes and businesses that still use private wells for drinking water or other purposes. • Residential receptors and exposure pathways are considered to provide a conservative estimate of risk for other potential receptors. Thus, ingestion of groundwater by a resident will produce a higher level of risk than ingestion of groundwater by a current and/or future indoor and/or outdoor worker. The worker scenarios may be complete exposure pathways if groundwater were to be used as drinking water; however, these pathways are not included in the risk ratio analysis because they are assumed to be conservatively evaluated under the residential scenario. • Inhalation of volatiles (from vapor intrusion of VOCs from shallow groundwater into indoor air) by a current/future resident and a future industrial/commercial worker. These exposure pathways are considered to be potentially complete because groundwater beneath the site is very shallow and VOCs in groundwater could possibly intrude into indoor air (*e.g.*, vapor intrusion into buildings that may be constructed on site or possible homes/businesses located near the site).

Figure J.4 continued

Sediment	• Incidental ingestion of sediment • Dermal contact with sediment	• Current outdoor worker • Future outdoor worker • Future indoor worker • Current/future resident	• PCLs are screening values protective of residential exposure to sediment. Thus, these values are considered to be conservative for current or future workers who might come into contact with contaminated sediment. The worker scenarios may be complete exposure pathways if workers were to come in contact with contaminated sediment; however, these pathways are not included in the risk ratio analysis because they are assumed to be conservatively evaluated under the residential scenario.
Surface Water (samples from pond and surrounding wetland areas)	• Ingestion of surface water as drinking water • Inhalation of surface water from use of surface water in the home (*e.g.*, showering, laundering, and dish washing)	• Current outdoor worker • Future outdoor worker • Future indoor worker • Current/future resident	• Approximately four miles downstream from AOCs 1 and 7, the Watervliet Reservoir is a Class A water body, which is suitable for drinking and all other uses. The Watervliet Reservoir water supply serves a population of over 40,000. • The residential surface water pathway was evaluated for information purposes to address RAB concerns that water in Black Creek may make its way to the Watervliet Reservoir drinking water supply. The pond at AOC 1 drains to a ditch that discharges to a wetland area. Black Creek flows through that wetland area, and eventually discharges to the Bozenkill, before entering Watervliet Reservoir, approximately four miles downstream of AOC 1 and 7. • The residential exposure scenario is protective of other receptor scenarios. Thus, if surface water were to be used by indoor or outdoor workers, the residential values would be protective for the workers. Thus, the potential worker scenarios were not evaluated.

Photo J.7.1 Facing from the Northeast Side of AOC 1 – Pond and Drainage Area

Photo J.7.2 Facing from the Northeast Side of AOC 1 – Typical Vegetation for Pond and Drainage Area

Photo J.7.3 Facing Northeast Adjacent from AOC 1 – Fence Boundary of SADVA

Photo J.7.4 Northeast Side of AOC 1 – Terrestrial Vegetation (Monitoring Well Location Shown in Center of Photo)

Photo J.7.5 Abandoned Railroad Tracks Leading to AOC 7

Photo J.7.6 Freshwater Wetland Vegetation at AOC 7

Table J.7.1
Detected Chemicals in Surface Soil
SADVA - AOCs 1 and 7

PARAMETER	CAS NUMBER	SAMPLE ID: / DEPTH: / SAMPLED: / UNITS:	MAX VALUE	SD-SS-GW01-0-0.5	SD-SS-GW02-0-0.5	SD-SS-GW03-0-0.5 [a]	AOC7-SB01A	AOC7-SB02A	AOC7-SB03A	AOC7-SB04A	SS-04-0,18 [b]	SS-05-12,18
		DEPTH:		0-0.5'	0-0.5'	0-0.5'	0.2'	0.2'	0.2'	0.2'	1-1.5	1-1.5
		SAMPLED:		6/14/2004	6/15/2004	6/15/2004	7/21/2000	7/21/2000	7/21/2000	7/21/2000	27-Jun-96	27-Jun-96
VOLATILES												
Acetone	67-64-1	µg/kg	2600	--	--	--	23 U	22 U	23 U	24 U	29 U	6 U
Ethylbenzene	100-41-4	µg/kg	24	--	--	--	5.7 U	5.6 U	5.6 U	6 U	24 J	6 U
Toluene	108-88-3	µg/kg	4	--	--	--	5.7 U	5.6 U	5.6 U	6 U	4 J	6 U
Trichloroethene	79-01-6	µg/kg	8	--	--	--	5.7 U	5.6 U	5.6 U	6 U	8 J	6 U
Methyl Ethyl Ketone (2-Butanone)	78-93-3	µg/kg	170	--	--	--	23 UJ	22 UJ	23 UJ	24 UJ	170	6 U
Xylene (total)	1330-20-7	µg/kg	530	--	--	--	5.7 U	5.6 U	5.6 U	6 U	530	6 U
SEMIVOLATILES												
Acenaphthene	83-32-9	µg/kg	350	360 U	350 J	360 U	370 U	370 U	370 U	390 U	--	--
Acenaphthylene	208-96-8	µg/kg	120	360 U	39 J	360 U	370 U	370 U	370 U	390 U	--	--
Anthracene	120-12-7	µg/kg	730	360 U	730	360 U	370 U	370 U	370 U	390 U	--	--
Benzo(a)anthracene	56-55-3	µg/kg	2400	54 J	2400	360 U	16 J	13 J	10 J	39 J	--	--
Benzo(b)fluoranthene	205-99-2	µg/kg	2700	82 J	2700	55 J	18 J	25 J	12 J	56 J	--	--
Benzo(k)fluoranthene	207-08-9	µg/kg	940	360 U	940	360 U	24 J	25 J	15 J	65 J	--	--
Benzo(a)pyrene	50-32-8	µg/kg	2400	46 J	2400	360 U	15 J	13 J	9.7 J	43 J	--	--
Benzo(g,h,i)perylene	191-24-2	µg/kg	1600	59 J	1600	44 J	10 J	12 J	370 U	27 J	--	--
Carbazole	86-74-8	µg/kg	1300	360 U	310 J	360 U	370 U	370 U	370 U	390 U	--	--
Chrysene	218-01-9	µg/kg	2800	94 J	2800	71 J	26 J	29 J	14 J	67 J	--	--
Dibenz(a,h)anthracene	53-70-3	µg/kg	420	360 U	420	360 U	370 U	370 U	370 U	390 U	--	--
Dibenzofuran	132-64-9	µg/kg	120	360 U	120 J	360 U	370 U	370 U	370 U	390 U	--	--
Di-n-butylphthalate	84-74-2	µg/kg	100	46 J	37 J	42 J	370 U	370 U	100 J	390 U	--	--
Fluoranthene	206-44-0	µg/kg	6100	93 J	6100	85 J	38 J	41 J	23 J	89 J	--	--
Fluorene	86-73-7	µg/kg	220	--	--	--	370 U	370 U	370 U	390 U	--	--
Indeno(1,2,3-cd)pyrene	193-39-5	µg/kg	1700	53 J	1700	37 J	11 J	11 J	370 U	29 J	--	--
Naphthalene	91-20-3	µg/kg	410	360 U	74 J	360 U	370 U	370 U	370 U	390 U	--	--
Phenanthrene	85-01-8	µg/kg	3100	57 J	3100	37 J	16 J	19 J	370 U	44 J	--	--
Pyrene	129-00-0	µg/kg	4200	90 J	4200	73 J	28 J	29 J	17 J	64 J	--	--
2,4-Dimethylphenol	105-67-9	µg/kg	150	--	--	--	370 U	370 U	370 U	390 U	--	--
2-Methylnaphthalene	91-57-6	µg/kg	230	360 U	50 J	360 U	370 U	370 U	370 U	390 U	--	--
Dibenzofuran	132-64-9	µg/kg	110	--	--	--	370 U	370 U	370 U	390 U	--	--
N-Nitrosodiphenylamine	86-30-6	µg/kg	68	--	--	--	370 U	370 U	370 U	390 U	--	--
PESTICIDES/PCBs												
4,4'-DDE	72-55-9	µg/kg	2.1	--	--	--	0.077 JN	0.29 JN	2.1 J	0.65 JN	--	--
Endrin	72-20-8	µg/kg	0.29	--	--	--	1.9 U	0.29 JN	1.9 U	2 U	--	--
Endrin aldehyde	7421-93-4	µg/kg	2.9	--	--	--	1.9 U	1.9 U	2.9 J	2 U	--	--
4,4'-DDD	72-54-8	µg/kg	2.7	--	--	--	1.9 U	1.9 U	2.7 JN	2 U	--	--
4,4'-DDT	50-29-3	µg/kg	6.9	--	--	--	1.9 U	0.45 J	6.9 JN	0.9 JN	--	--
Aroclor 1260	1336-36-3	µg/kg	160	--	--	--	1.9 U	1.9 U	160	2 U	--	--
Metals												
Aluminum	7429-90-5	mg/kg	12100	--	--	--	10600	10400	9850	12100	--	--
Antimony	7440-36-0	mg/kg	0.36	--	--	--	0.19 J	0.29 J	0.27 J	0.36 J	--	--
Arsenic	7440-38-2	mg/kg	6.7	--	--	--	5.9	5.7	5.4	6.7	--	--
Barium	7440-39-3	mg/kg	47.4	--	--	--	40	39.4	41	47.4	--	--
Beryllium	7440-41-7	mg/kg	0.59	--	--	--	0.52 J	0.54 J	0.49 J	0.59 J	--	--
Cadmium	7440-43-9	mg/kg	0.65	--	--	--	0.53 J	0.44 J	0.53 J	0.65	--	--
Calcium	7440-70-2	mg/kg		--	--	--	7350	3890	13500	5580	--	--
Chromium	7440-47-3	mg/kg	337	--	--	--	16.9 J	15.7 J	19.4 J	19.3 J	--	--
Chromium VI	18540-29-9	mg/kg	350	--	--	--	--	--	--	--	--	--
Cobalt	7440-48-4	mg/kg	13.3	--	--	--	11.8 J	11.8 J	11.2 J	13.3 J	--	--
Copper	7440-50-8	mg/kg	32.7	--	--	--	29.2	24.9	30.9	32.7	--	--
Iron	7439-89-6	mg/kg		--	--	--	26700 J	25400 J	25100 J	30000 J	--	--
Lead	7439-92-1	mg/kg	35.4	--	--	--	19.3	15.2	35.4	25.9	--	--
Magnesium	7439-95-4	mg/kg		--	--	--	6340	4820	8550	6760	--	--
Manganese	7439-96-5	mg/kg	649	--	--	--	649	549	517	615	--	--
Mercury	7439-97-6	mg/kg	0.064	--	--	--	0.044	0.047	0.04	0.064	--	--
Nickel	7440-02-0	mg/kg	27.3	--	--	--	26.2 J	22.9 J	24.8 J	27.3 J	--	--
Potassium	7440-09-7	mg/kg		--	--	--	1370	1140	1270	1600	--	--
Silver	7440-22-4	mg/kg	1.9	--	--	--	0.12 J	0.15 J	0.16 J	0.12 J	--	--
Sodium	7440-23-5	mg/kg		--	--	--	50.4 J	46.3 J	57.6 J	59.2 J	--	--
Thallium	7440-28-0	mg/kg	0.55	--	--	--	0.44 U	0.44 U	0.44 U	0.55 J	--	--
Vanadium	7440-62-2	mg/kg	25.2	--	--	--	20.9	22.9	18.6	25.2	--	--
Zinc	7440-66-6	mg/kg	114	--	--	--	88.9	79.8	84.5	114	--	--

J = Estimated Value
UJ = Analyte not detected; the number is the estimated analytical reporting limit.
U = Analyte not detected; the number is the analytical reporting limit.
R = Rejected during data validation
D = Diluted
ND = Not Detected
a) The highest result between samples SD-SS-GW03-0-0.5 and SD-SS-GW103-0-0.5 (dup of SD-SS-GW03-0-0.5) is reported.
b) The highest result between samples SS-04-12,18 and SS-04-12,18DUP is reported.
c) The highest result between samples SS-04-0,18 and SS-04-0,18 DUP is reported.

Table J.7.1
Detected Chemicals in Surface Soil
SADVA - AOCs 1 and 7

		SAMPLE ID:	SS-01-12,18	SS-02-12,18	SS-03-12,18	SS-06-12,18	SS-04-0,18 [c]	SS-05-0,24	SS-01-0,24	SS-02-0,24	SS-03-0,24	SS-06-0,24
		DEPTH:	1-1.5	1-1.5	1-1.5	1-1.5	0-1.5	0-2	0-2	0-2	0-2	0-2
		SAMPLED:	27-Jun-96	27-Jun-96	27-Jun-96	27-Jun-96	27-Jun-96	27-Jun-96	27-Jun-96	27-Jun-96	27-Jun-96	27-Jun-96
PARAMETER	**CAS NUMBER**	UNITS:										
VOLATILES												
Acetone	67-64-1	μg/kg	6 U	2600 D	6 U	6 U	--	--	--	--	--	--
Ethylbenzene	100-41-4	μg/kg	6 U	6 UJ	6 U	6 U	--	--	--	--	--	--
Toluene	108-88-3	μg/kg	6 U	6 UJ	6 U	6 U	--	--	--	--	--	--
Trichloroethene	79-01-6	μg/kg	6 U	6 U	6 U	6 U	--	--	--	--	--	--
Methyl Ethyl Ketone (2-Butanone)	78-93-3	μg/kg	6 U	6 U	6 U	6 U	--	--	--	--	--	--
Xylene (total)	1330-20-7	μg/kg	6 U	6 UJ	6 U	6 U	--	--	--	--	--	--
SEMIVOLATILES												
Acenaphthene	83-32-9	μg/kg	--	--	--	--	270 J	370 UJ	410 UJ	15 J	380 U	20 J
Acenaphthylene	208-96-8	μg/kg	--	--	--	--	120 J	23 J	410 UJ	410 U	380 U	29 J
Anthracene	120-12-7	μg/kg	--	--	--	--	490 J	20 J	410 UJ	30 J	14 J	70 J
Benzo(a)anthracene	56-55-3	μg/kg	--	--	--	--	1500 J	61 J	410 UJ	110 J	59 J	180 J
Benzo(b)fluoranthene	205-99-2	μg/kg	--	--	--	--	2100 J	100 J	410 UJ	140 J	75 J	270 J
Benzo(k)fluoranthene	207-08-9	μg/kg	--	--	--	--	660 J	36 J	410 UJ	53 J	28 J	84 J
Benzo(a)pyrene	50-32-8	μg/kg	--	--	--	--	1300 J	57 J	410 UJ	97 J	54 J	170 J
Benzo(g,h,i)perylene	191-24-2	μg/kg	--	--	--	--	470 J	14 J	410 UJ	410 U	30 J	60 J
Carbazole	86-74-8	μg/kg	--	--	--	--	1300 J	370 UJ	410 UJ	410 U	380 U	370 U
Chrysene	218-01-9	μg/kg	--	--	--	--	1500 J	84 J	410 UJ	120 J	66 J	200 J
Dibenz(a,h)anthracene	53-70-3	μg/kg	--	--	--	--	130 J	370 UJ	410 UJ	410 U	6 J	370 U
Dibenzofuran	132-64-9	μg/kg	--	--	--	--	--	--	--	--	--	--
Di-n-butylphthalate	84-74-2	μg/kg	--	--	--	--	360 UJ	780 UJ	480 UJ	410 U	500 U	370 U
Fluoranthene	206-44-0	μg/kg	--	--	--	--	2800 J	86 J	410 UJ	240 J	120 J	360 J
Fluorene	86-73-7	μg/kg	--	--	--	--	220 J	370 UJ	410 UJ	410 U	380 U	370 U
Indeno(1,2,3-cd)pyrene	193-39-5	μg/kg	--	--	--	--	530 J	28 J	410 UJ	32 J	29 J	69 J
Naphthalene	91-20-3	μg/kg	--	--	--	--	410 J	5 J	410 UJ	410 U	380 U	370 U
Phenanthrene	85-01-8	μg/kg	--	--	--	--	1900 J	36 J	410 UJ	150 J	62 J	220 J
Pyrene	129-00-0	μg/kg	--	--	--	--	3100 DJ	110 J	410 UJ	200 J	110 J	330 J
2,4-Dimethylphenol	105-67-9	μg/kg	--	--	--	--	150 J	370 UJ	410 UJ	410 U	380 U	370 U
2-Methylnaphthalene	91-57-6	μg/kg	--	--	--	--	230 J	7 J	410 UJ	410 U	380 U	370 U
Dibenzofuran	132-64-9	μg/kg	--	--	--	--	110 J	370 UJ	410 UJ	410 U	380 U	10 J
N-Nitrosodiphenylamine	86-30-6	μg/kg	--	--	--	--	68 J	370 UJ	410 UJ	410 U	380 U	370 U
PESTICIDES/PCBs												
4,4'-DDE	72-55-9	μg/kg	--	--	--	--	--	--	--	--	--	--
Endrin	72-20-8	μg/kg	--	--	--	--	--	--	--	--	--	--
Endrin aldehyde	7421-93-4	μg/kg	--	--	--	--	--	--	--	--	--	--
4,4'-DDD	72-54-8	μg/kg	--	--	--	--	--	--	--	--	--	--
4,4'-DDT	50-29-3	μg/kg	--	--	--	--	--	--	--	--	--	--
Aroclor 1260	1336-36-3	μg/kg	--	--	--	--	--	--	--	--	--	--
Metals												
Aluminum	7429-90-5	mg/kg	--	--	--	--	--	--	--	--	--	--
Antimony	7440-36-0	mg/kg	--	--	--	--	--	--	--	--	--	--
Arsenic	7440-38-2	mg/kg	--	--	--	--	--	--	--	--	--	--
Barium	7440-39-3	mg/kg	--	--	--	--	4.1	37.1	1.6	3.5	4.6	4.3
Beryllium	7440-41-7	mg/kg	--	--	--	--	--	--	--	--	--	--
Cadmium	7440-43-9	mg/kg	--	--	--	--	--	--	--	--	--	--
Calcium	7440-70-2	mg/kg	--	--	--	--	--	--	--	--	--	--
Chromium	7440-47-3	mg/kg	--	--	--	--	337	21.4	13.2	19.2	36.1	14.1
Chromium VI	18540-29-9	mg/kg	--	--	--	--	350 J	0.11 UJ	0.12 UJ	0.12 UJ	0.17 J	0.12 J
Cobalt	7440-48-4	mg/kg	--	--	--	--	--	--	--	--	--	--
Copper	7440-50-8	mg/kg	--	--	--	--	--	--	--	--	--	--
Iron	7439-89-6	mg/kg	--	--	--	--	--	--	--	--	--	--
Lead	7439-92-1	mg/kg	--	--	--	--	--	--	--	--	--	--
Magnesium	7439-95-4	mg/kg	--	--	--	--	--	--	--	--	--	--
Manganese	7439-96-5	mg/kg	--	--	--	--	--	--	--	--	--	--
Mercury	7439-97-6	mg/kg	--	--	--	--	--	--	--	--	--	--
Nickel	7440-02-0	mg/kg	--	--	--	--	--	--	--	--	--	--
Potassium	7440-09-7	mg/kg	--	--	--	--	--	--	--	--	--	--
Silver	7440-22-4	mg/kg	--	--	--	--	1.9	0.47 U	0.52 U	0.52 U	0.48 U	0.47 U
Sodium	7440-23-5	mg/kg	--	--	--	--	--	--	--	--	--	--
Thallium	7440-28-0	mg/kg	--	--	--	--	--	--	--	--	--	--
Vanadium	7440-62-2	mg/kg	--	--	--	--	--	--	--	--	--	--
Zinc	7440-66-6	mg/kg	--	--	--	--	--	--	--	--	--	--

J = Estimated Value
UJ = Analyte not detected; the number is the estimated analytical reporting limit.
U = Analyte not detected; the number is the analytical reporting limit.
R = Rejected during data validation
D = Diluted
ND = Not Detected
a) The highest result between samples SD-SS-GW03-0-0.5 and SD-SS-GW103-0-0.5 (dup of SD-SS-GW03-0-0.5) is reported.
b) The highest result between samples SS-04-12,18 and SS-04-12,18DUP is reported.
c) The highest result between samples SS-04-0,18 and SS-04-0,18 DUP is reported.

Table J.7.2
Detected Chemicals in Mixed (Surface/Subsurface) Soil
SADVA - AOCs 1 and 7

PARAMETER	CAS NUMBER	SAMPLE ID: / DEPTH: / SAMPLED: / UNITS:	MAX VALUE	SD-SS-GW01-0-0.5 / 0-0.5' / 6/14/2004	SD-SS-GW02-0-0.5 / 0-0.5' / 6/15/2004	SD-SS-GW03-0-0.5 [a] / 0-0.5' / 6/15/2004	SD-GW12C AOC1 / 6-8' / 11/23/2004	SD-GW14DE AOC1 / 6-10' / 11/19/2004	SD-SS-GW01-10-12 / 10-12' / 6/14/2004	SD-SS-GW02-38-40 / 38-40' / 6/15/2004	SD-SS-GW03-10-12 / 10-12' / 6/15/2004	AOC7-SB01A / 0.2' / 7/21/2000	AOC7-SB02A / 0.2' / 7/21/2000
VOLATILES													
Acetone	67-64-1	µg/kg	2600	--	--	--	--	--	--	--	--	23 U	22 U
Ethylbenzene	100-41-4	µg/kg	24	--	--	--	--	--	--	--	--	5.7 U	5.6 U
Toluene	108-88-3	µg/kg	4	--	--	--	--	--	--	--	--	5.7 U	5.6 U
Trichloroethene	79-01-6	µg/kg	8	--	--	--	--	--	--	--	--	5.7 U	5.6 U
Methyl Ethyl Ketone (2-Butanone)	78-93-3	µg/kg	170	--	--	--	--	--	--	--	--	23 UJ	22 UJ
Xylene (total)	1330-20-7	µg/kg	530	--	--	--	--	--	--	--	--	5.7 U	5.6 U
SEMIVOLATILES													
Acenaphthene	83-32-9	µg/kg	350	360 U	350 J	360 U	--	--	750 U	360 U	420 U	370 U	370 U
Acenaphthylene	208-96-8	µg/kg	120	360 U	39 J	360 U	--	--	750 U	360 U	420 U	370 U	370 U
Anthracene	120-12-7	µg/kg	730	360 U	730	360 U	--	--	750 U	360 U	420 U	370 U	370 U
Benzo(a)anthracene	56-55-3	µg/kg	2400	54 J	2400	360 U	--	--	750 U	360 U	420	16 J	13 J
Benzo(b)fluoranthene	205-99-2	µg/kg	2700	82 J	2700	55 J	--	--	750 U	360 U	420	18 J	25 J
Benzo(k)fluoranthene	207-08-9	µg/kg	940	360 U	940	360 U	--	--	750 U	360 U	420	24 J	25 J
Benzo(a)pyrene	50-32-8	µg/kg	2400	46 J	2400	360 U	--	--	750 U	360 U	420	15 J	13 J
Benzo(g,h,i)perylene	191-24-2	µg/kg	1600	59 J	1600	44 J	--	--	750 U	360 U	420 U	10 J	12 J
bis(2-Ethylhexyl)phthalate	117-81-7	µg/kg	74	--	--	--	360 U	74 J	--	--	--	370 U	370 U
Carbazole	86-74-8	µg/kg	1300	360 U	310 J	360 U	--	--	750 U	360 U	420 U	370 U	370 U
Chrysene	218-01-9	µg/kg	2800	94 J	2800	71 J	--	--	750 U	360 U	420 U	26 J	29 J
Dibenz(a,h)anthracene	53-70-3	µg/kg	420	360 U	420	360 U	--	--	750 U	360 U	420 U	370 U	370 U
Dibenzofuran	132-64-9	µg/kg	120	360 U	120 J	360 U	--	--	750 U	360 U	420 U	370 U	370 U
Di-n-butylphthalate	84-74-2	µg/kg	100	46 J	37 J	42 J	--	--	750 U	360 U	420 U	370 U	370 U
Fluoranthene	206-44-0	µg/kg	6100	93 J	6100	85 J	--	--	750 U	360 U	420 U	38 J	41 J
Fluorene	86-73-7	µg/kg	220	--	--	--	--	--	--	--	--	370 U	370 U
Indeno(1,2,3-cd)pyrene	193-39-5	µg/kg	1700	53 J	1700	37 J	--	--	750 U	360 U	420 U	11 J	11 J
Naphthalene	91-20-3	µg/kg	410	360 U	74 J	360 U	--	--	750 U	360 U	420 U	370 U	370 U
Phenanthrene	85-01-8	µg/kg	3100	57 J	3100	37 J	--	--	750 U	360 U	420 U	16 J	19 J
Pyrene	129-00-0	µg/kg	4200	90 J	4200	73 J	--	--	750 U	360 U	420 U	28 J	29 J
2,4-Dimethylphenol	105-67-9	µg/kg	150	--	--	--	--	--	--	--	--	370 U	370 U
2-Methylnaphthalene	91-57-6	µg/kg	230	360 U	50 J	360 U	--	--	750 U	360 U	420 U	370 U	370 U
Dibenzofuran	132-64-9	µg/kg	110	--	--	--	--	--	--	--	--	370 U	370 U
N-Nitrosodiphenylamine	86-30-6	µg/kg	68	--	--	--	--	--	--	--	--	370 U	370 U
PESTICIDES/PCBs													
4,4'-DDE	72-55-9	µg/kg	2.1	--	--	--	--	--	--	--	--	0.077 JN	0.29 JN
Endrin	72-20-8	µg/kg	0.29	--	--	--	--	--	--	--	--	1.9 U	0.29 JN
Endrin aldehyde	7421-93-4	µg/kg	2.9	--	--	--	--	--	--	--	--	1.9 U	1.9 U
4,4'-DDD	72-54-8	µg/kg	2.7	--	--	--	--	--	--	--	--	1.9 U	1.9 U
4,4'-DDT	50-29-3	µg/kg	6.9	--	--	--	--	--	--	--	--	1.9 U	0.45 J
Aroclor 1260	1336-36-3	µg/kg	160	--	--	--	--	--	--	--	--	1.9 U	1.9 U
Metals													
Aluminum	7429-90-5	mg/kg	15100	--	--	--	10700	10300	--	--	--	10600	10400
Antimony	7440-36-0	mg/kg	0.36	--	--	--	--	--	--	--	--	0.19 J	0.29 J
Arsenic	7440-38-2	mg/kg	8.6	--	--	--	7.7	5.8	--	--	--	5.9	5.7
Barium	7440-39-3	mg/kg	140	--	--	--	140 J	60 J	--	--	--	40	39.4
Beryllium	7440-41-7	mg/kg	1.2	--	--	--	0.81	0.82	--	--	--	0.52 J	0.54 J
Cadmium	7440-43-9	mg/kg	0.65	--	--	--	0.33 J	0.31 J	--	--	--	0.53 J	0.44 J
Calcium	7440-70-2	mg/kg		--	--	--	18500 J	21500 J	--	--	--	7350	3890
Chromium	7440-47-3	mg/kg	337	--	--	--	15.8	15.2	--	--	--	16.9 J	15.7 J
Chromium VI	18540-29-9	mg/kg	350	--	--	--	--	--	--	--	--	--	--
Cobalt	7440-48-4	mg/kg	15	--	--	--	11	10.1	--	--	--	11.8 J	11.8 J
Copper	7440-50-8	mg/kg	32.7	--	--	--	27.7	27.3	--	--	--	29.2	24.9
Iron	7439-89-6	mg/kg		--	--	--	24600	24800	--	--	--	26700 J	25400 J
Lead	7439-92-1	mg/kg	35.4	--	--	--	12.8 J	9.8 J	--	--	--	19.3	15.2
Magnesium	7439-95-4	mg/kg		--	--	--	8470	8570	--	--	--	6340	4820
Manganese	7439-96-5	mg/kg	649	--	--	--	477	483	--	--	--	649	549
Mercury	7439-97-6	mg/kg	0.064	--	--	--	0.023 J	0.014 J	--	--	--	0.044	0.047
Nickel	7440-02-0	mg/kg	27.3	--	--	--	24.6 J	23.8 J	--	--	--	26.2 J	22.9 J
Potassium	7440-09-7	mg/kg		--	--	--	1910	1850	--	--	--	1370	1140
Selenium	7782-49-2	mg/kg	1	--	--	--	1 J	0.94 J	--	--	--	0.24 U	0.24 U
Silver	7440-22-4	mg/kg	1.9	--	--	--	0.13 J	0.12 J	--	--	--	0.12 J	0.15 J
Sodium	7440-23-5	mg/kg		--	--	--	153 J	133 J	--	--	--	50.4 J	46.3 J
Thallium	7440-28-0	mg/kg	0.95	--	--	--	--	--	--	--	--	0.44 U	0.44 U
Vanadium	7440-62-2	mg/kg	35.7	--	--	--	20.5	20.3	--	--	--	20.9	22.9
Zinc	7440-66-6	mg/kg	114	--	--	--	53.3 J	53.5 J	--	--	--	88.9	79.8

J = Estimated Value
UJ = Analyte not detected; the number is the estimated analytical reporting limit.
U = Analyte not detected; the number is the analytical reporting limit.
R = Rejected during data validation
D = Diluted
ND = Not Detected
N = Presumptive Evidence; compound identification is not definitive
SB = Site Background
NS = No Standard
Concentration above NYSDEC Soil Criteria.
a) The highest result between samples SD-SS-GW03-0-0.5 and SD-SS-GW103-0-0.5
(dup of SD-SS-GW03-0-0.5) is reported.
c) The highest result between samples SS-04-0,18 and SS-04-0,18 DUP is reported.

Table J.7.2
Detected Chemicals in Mixed (Surface/Subsurface) Soil
SADVA - AOCs 1 and 7

PARAMETER	CAS NUMBER	SAMPLE ID:	AOC7-SB03A	AOC7-SB04A	AOC7-SB01B	AOC7-SB01C	AOC7-SB02B	AOC7-SB02C	AOC7-SB03B	AOC7-SB03C	AOC7-SB04B	AOC7-SB04C	SS-04-12,18 [b]	SS-05
		DEPTH:	0.2'	0.2'	3'	5'	3'	5'	3'	5'	3'	5'	1-1.5	1-1
		SAMPLED:	7/21/2000	7/21/2000	8/15/2000	8/15/2000	8/15/2000	8/15/2000	8/15/2000	8/15/2000	8/15/2000	8/15/2000	01-Jul-96	01-Ju
		UNITS:												
VOLATILES														
Acetone	67-64-1	µg/kg	23 U	24 U	22 UJ	30 J	21 UJ	25 UJ	21 UJ	4 J	22 UJ	24 UJ	27 U	6
Ethylbenzene	100-41-4	µg/kg	5.6 U	6 U	5.5 U	6 U	5.3 U	6.3 U	5.3 U	6.3 U	5.5 U	6 U	24 J	6
Toluene	108-88-3	µg/kg	5.6 U	6 U	5.5 U	6 U	1.6 J	3.1 J	5.3 U	6.3 U	5.5 U	6 U	4 J	6
Trichloroethene	79-01-6	µg/kg	5.6 U	6 U	5.5 U	6 U	5.3 U	6.3 U	5.3 U	6.3 U	5.5 U	6 U	8 J	6
Methyl Ethyl Ketone (2-Butanone)	78-93-3	µg/kg	23 UJ	24 UJ	22 UJ	24 UJ	21 UJ	25 UJ	21 UJ	25 UJ	22 UJ	24 UJ	170	6
Xylene (total)	1330-20-7	µg/kg	5.6 U	6 U	5.5 U	6 U	5.3 U	6.3 U	5.3 U	6.3 U	5.5 U	6 U	530	6
SEMIVOLATILES														
Acenaphthene	83-32-9	µg/kg	370 U	390 U	360 U	390 U	350 U	420 U	350 U	410 U	360 U	390 U	--	--
Acenaphthylene	208-96-8	µg/kg	370 U	390 U	360 U	390 U	350 U	420 U	350 U	410 U	360 U	390 U	--	--
Anthracene	120-12-7	µg/kg	370 U	390 U	360 U	390 U	350 U	420 U	350 U	410 U	360 U	390 U	--	--
Benzo(a)anthracene	56-55-3	µg/kg	10 J	39 J	360 U	390 U	350 U	420 U	350 U	410 U	29 J	390 U	--	--
Benzo(b)fluoranthene	205-99-2	µg/kg	12 J	56 J	360 U	390 U	350 U	420 U	350 U	410 U	360 U	390 U	--	--
Benzo(k)fluoranthene	207-08-9	µg/kg	15 J	65 J	360 U	390 U	350 U	420 U	350 U	410 U	360 U	390 U	--	--
Benzo(a)pyrene	50-32-8	µg/kg	9.7 J	43 J	360 U	390 U	350 U	420 U	350 U	410 U	360 U	390 U	--	--
Benzo(g,h,i)perylene	191-24-2	µg/kg	370 U	27 J	360 U	390 U	350 U	420 U	350 U	410 U	360 U	390 U	--	--
bis(2-Ethylhexyl)phthalate	117-81-7	µg/kg	370 U	390 U	360 U	390 U	350 U	420 U	350 U	410 U	58 J	390 U	--	--
Carbazole	86-74-8	µg/kg	370 U	390 U	360 U	390 U	350 U	420 U	350 U	410 U	360 U	390 U	--	--
Chrysene	218-01-9	µg/kg	14 J	67 J	360 U	390 U	350 U	420 U	350 U	410 U	53 J	390 U	--	--
Dibenz(a,h)anthracene	53-70-3	µg/kg	370 U	390 U	360 U	390 U	350 U	420 U	350 U	410 U	360 U	390 U	--	--
Dibenzofuran	132-64-9	µg/kg	370 U	390 U	360 U	390 U	350 U	420 U	350 U	410 U	360 U	390 U	--	--
Di-n-butylphthalate	84-74-2	µg/kg	100 J	390 U	360 U	390 U	350 U	420 U	350 U	410 U	360 U	390 U	--	--
Fluoranthene	206-44-0	µg/kg	23 J	89 J	360 U	390 U	350 U	420 U	350 U	410 U	170 J	390 U	--	--
Fluorene	86-73-7	µg/kg	370 U	390 U	360 U	390 U	350 U	420 U	350 U	410 U	360 U	390 U	--	--
Indeno(1,2,3-cd)pyrene	193-39-5	µg/kg	370 U	29 J	360 U	390 U	350 U	420 U	350 U	410 U	360 U	390 U	--	--
Naphthalene	91-20-3	µg/kg	370 U	390 U	360 U	390 U	350 U	420 U	350 U	410 U	360 U	390 U	--	--
Phenanthrene	85-01-8	µg/kg	370 U	44 J	360 U	390 U	350 U	420 U	350 U	410 U	30 J	390 U	--	--
Pyrene	129-00-0	µg/kg	17 J	64 J	360 U	390 U	350 U	420 U	350 U	410 U	100 J	390 U	--	--
2,4-Dimethylphenol	105-67-9	µg/kg	370 U	390 U	360 U	390 U	350 U	420 U	350 U	410 U	360 U	390 U	--	--
2-Methylnaphthalene	91-57-6	µg/kg	370 U	390 U	360 U	390 U	350 U	420 U	350 U	410 U	360 U	390 U	--	--
Dibenzofuran	132-64-9	µg/kg	370 U	390 U	360 U	390 U	350 U	420 U	350 U	410 U	360 U	390 U	--	--
N-Nitrosodiphenylamine	86-30-6	µg/kg	370 U	390 U	360 U	390 U	350 U	420 U	350 U	410 U	360 U	390 U	--	--
PESTICIDES/PCBs														
4,4'-DDE	72-55-9	µg/kg	2.1 J	0.65 JN	1.9 U	2 U	1.8 U	2.1 U	1.8 U	2.1 U	0.069 JN	2 U		
Endrin	72-20-8	µg/kg	1.9 U	2 U	1.9 U	2 U	1.8 U	2.1 U	1.8 U	2.1 U	1.9 U	2 U		
Endrin aldehyde	7421-93-4	µg/kg	2.9 J	2 U	1.9 U	2 U	1.8 U	2.1 U	1.8 U	2.1 U	1.9 U	2 U		
4,4'-DDD	72-54-8	µg/kg	2.7 JN	2 U	1.9 U	2 U	1.8 U	2.1 U	1.8 U	2.1 U	1.9 U	2 U		
4,4'-DDT	50-29-3	µg/kg	6.9 JN	0.9 JN	1.9 U	2 U	1.8 U	2.1 U	1.8 U	2.1 U	1.9 U	2 U		
Aroclor 1260	1336-36-3	µg/kg	160	2 U	1.9 U	2 U	1.8 U	2.1 U	1.8 U	2.1 U	1.9 U	2 U		
Metals														
Aluminum	7429-90-5	mg/kg	9850	12100	11000	15100	10000	13900	10300	11300	10200	14800	--	--
Antimony	7440-36-0	mg/kg	0.27 J	0.36 J	0.17 J	0.17 UJ	0.32 J	0.18 UJ	0.15 UJ	0.2 J	0.16 UJ	0.17 UJ	--	--
Arsenic	7440-38-2	mg/kg	5.4	6.7	4.9	5.4	6.9	8.1	4.7	8.6	6.5	4.3	--	--
Barium	7440-39-3	mg/kg	41	47.4	31	84.3	50.9	98.7	28.7	64.4	33	97.2	--	--
Beryllium	7440-41-7	mg/kg	0.49 J	0.59 J	0.45 J	0.95	0.58	1.2	0.41 J	0.91	0.5 J	1	--	--
Cadmium	7440-43-9	mg/kg	0.53 J	0.65	0.092 J	0.059 U	0.06 J	0.062 U	0.095 J	0.062 U	0.17 J	0.059 U	--	--
Calcium	7440-70-2	mg/kg	13500	5580	17500	1360	23800	2650	31500	3370	21300	2790	--	--
Chromium	7440-47-3	mg/kg	19.4 J	19.3 J	15.8	16.7	15.6	15.1	13.9	13.6	15	15.4	--	--
Chromium VI	18540-29-9	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	7440-48-4	mg/kg	11.2 J	13.3 J	11.2	13.6	12.7	15	11.2	13.5	12.4	8.8	--	--
Copper	7440-50-8	mg/kg	30.9	32.7	23.5 J	19.9 J	29.8 J	27.2 J	21.6 J	27.1 J	28.8 J	17.3 J	--	--
Iron	7439-89-6	mg/kg	25100 J	30000 J	26800	38400	26300	42600	25000	34200	27600	28700	--	--
Lead	7439-92-1	mg/kg	35.4	25.9	10.6	11.1	11.6	8.7	11	7.5	11.2	7.7	--	--
Magnesium	7439-95-4	mg/kg	8550	6760	7090	3710	7050	3310	13300	3570	8070	3130	--	--
Manganese	7439-96-5	mg/kg	517	615	647	205	523	183	614	246	599	174	--	--
Mercury	7439-97-6	mg/kg	0.04	0.064	0.019 J	0.028 J	0.025 J	0.035 J	0.016 J	0.039 J	0.023 J	0.034 J	--	--
Nickel	7440-02-0	mg/kg	24.8 J	27.3 J	21.6	20.7	24.1	24.6	21.4	22.9	24.2	16.6	--	--
Potassium	7440-09-7	mg/kg	1270	1600	677	497 J	1130	533 J	673	594 J	880	453 J	--	--
Selenium	7782-49-2	mg/kg	0.24 U	0.25 U	0.23 U	0.25 U	0.22 U	0.26 U	0.22 U	0.26 U	0.23 U	0.25 U	--	--
Silver	7440-22-4	mg/kg	0.16 J	0.12 J	0.1 U	0.11 U	0.099 U	0.12 U	0.099 U	0.12 U	0.1 U	0.11 U	--	--
Sodium	7440-23-5	mg/kg	57.6 J	59.2 J	50.3 J	73.3 J	64.4 J	89.4 J	67.9 J	119 J	64.2 J	128 J	--	--
Thallium	7440-28-0	mg/kg	0.44 U	0.55 J	0.43 U	0.46 U	0.41 U	0.83 J	0.95 J	0.49 U	0.93 J	0.46 U	--	--
Vanadium	7440-62-2	mg/kg	18.6	25.2	16.2 J	27.5 J	18.8 J	35.7 J	14.7 J	32.2 J	18.4 J	31.7 J	--	--
Zinc	7440-66-6	mg/kg	84.5	114	71.3	48.2	68.4	59.1	73.1	52.6	93.8	40.8	--	--

J = Estimated Value
UJ = Analyte not detected; the number is the estimated analytical reporting limit.
U = Analyte not detected; the number is the analytical reporting limit.
R = Rejected during data validation
D = Diluted
ND = Not Detected
N = Presumptive Evidence; compound identification is not definitive
SB = Site Background
NS = No Standard
Concentration above NYSDEC Soil Criteria.
a) The highest result between samples SD-SS-GW03-0-0.5 and SD-SS-GW103-0-0.5
(dup of SD-SS-GW03-0-0.5) is reported.
c) The highest result between samples SS-04-0,18 and SS-04-0,18 DUP is reported.

Table J.7.2
Detected Chemicals in Mixed (Surface/Subsurface) Soil
SADVA - AOCs 1 and 7

PARAMETER	CAS NUMBER	SAMPLE ID: / DEPTH: / SAMPLED: / UNITS:	-12,18 / .5 / ul-96	SS-01-12,18 / 1-1.5 / 01-Jul-96	SS-02-12,18 / 1-1.5 / 01-Jul-96	SS-03-12,18 / 1-1.5 / 02-Jul-96	SS-06-12,18 / 1-1.5 / 01-Jul-96	SS-04-0,18 [c] / 0-1.5 / 02-Jul-96	SS-05-0,24 / 0-2 / 02-Jul-96	SS-01-0,24 / 0-2 / 02-Jul-96	SS-02-0,24 / 0-2 / 02-Jul-96	SS-03-0,24 / 0-2 / 02-Jul-96	SS-06-0,24 / 0-2 / 02-Jul-96
VOLATILES													
Acetone	67-64-1	µg/kg	U	6 U	2600 D	6 U	6 U	--	--	--	--	--	--
Ethylbenzene	100-41-4	µg/kg	U	6 U	6 UJ	6 U	6 U	--	--	--	--	--	--
Toluene	108-88-3	µg/kg	U	6 U	6 UJ	6 U	6 U	--	--	--	--	--	--
Trichloroethene	79-01-6	µg/kg	U	6 U	6 U	6 U	6 U	--	--	--	--	--	--
Methyl Ethyl Ketone (2-Butanone)	78-93-3	µg/kg	U	6 U	6 U	6 U	6 U	--	--	--	--	--	--
Xylene (total)	1330-20-7	µg/kg	U	6 U	6 UJ	6 U	6 U	--	--	--	--	--	--
SEMIVOLATILES													
Acenaphthene	83-32-9	µg/kg		--	--	--	--	270 J	370 UJ	410 UJ	15 J	380 U	20 J
Acenaphthylene	208-96-8	µg/kg		--	--	--	--	120 J	23 J	410 UJ	410 U	380 U	29 J
Anthracene	120-12-7	µg/kg		--	--	--	--	490 J	20 J	410 UJ	30 J	14 J	70 J
Benzo(a)anthracene	56-55-3	µg/kg		--	--	--	--	1500 J	61 J	410 UJ	110 J	59 J	180 J
Benzo(b)fluoranthene	205-99-2	µg/kg		--	--	--	--	2100 J	100 J	410 UJ	140 J	75 J	270 J
Benzo(k)fluoranthene	207-08-9	µg/kg		--	--	--	--	750 J	36 J	410 UJ	53 J	28 J	84 J
Benzo(a)pyrene	50-32-8	µg/kg		--	--	--	--	1300 J	57 J	410 UJ	97 J	54 J	170 J
Benzo(g,h,i)perylene	191-24-2	µg/kg		--	--	--	--	470 J	14 J	410 UJ	410 U	30 J	60 J
bis(2-Ethylhexyl)phthalate	117-81-7	µg/kg		--	--	--	--	360 UJ	370 UJ	410 UJ	410 U	380 U	560 U
Carbazole	86-74-8	µg/kg		--	--	--	--	1300 J	370 UJ	410 UJ	410 U	380 U	370 U
Chrysene	218-01-9	µg/kg		--	--	--	--	1500 J	84 J	410 UJ	120 J	66 J	200 J
Dibenz(a,h)anthracene	53-70-3	µg/kg		--	--	--	--	130 J	370 UJ	410 UJ	410 U	6 J	370 U
Dibenzofuran	132-64-9	µg/kg		--	--	--	--	--	--	--	--	--	--
Di-n-butylphthalate	84-74-2	µg/kg		--	--	--	--	360 UJ	780 UJ	480 UJ	410 U	500 U	370 U
Fluoranthene	206-44-0	µg/kg		--	--	--	--	2800 J	86 J	410 UJ	240 J	120 J	360 J
Fluorene	86-73-7	µg/kg		--	--	--	--	220 J	370 UJ	410 UJ	410 U	380 U	370 U
Indeno(1,2,3-cd)pyrene	193-39-5	µg/kg		--	--	--	--	530 J	28 J	410 UJ	32 J	29 J	69 J
Naphthalene	91-20-3	µg/kg		--	--	--	--	410 J	5 J	410 UJ	410 U	380 U	370 U
Phenanthrene	85-01-8	µg/kg		--	--	--	--	1900 J	36 J	410 UJ	150 J	62 J	220 J
Pyrene	129-00-0	µg/kg		--	--	--	--	3100 DJ	110 J	410 UJ	200 J	110 J	330 J
2,4-Dimethylphenol	105-67-9	µg/kg		--	--	--	--	150 J	370 UJ	410 UJ	410 U	380 U	370 U
2-Methylnaphthalene	91-57-6	µg/kg		--	--	--	--	230 J	7 J	410 UJ	410 U	380 U	370 U
Dibenzofuran	132-64-9	µg/kg		--	--	--	--	110 J	370 UJ	410 UJ	410 U	380 U	10 J
N-Nitrosodiphenylamine	86-30-6	µg/kg		--	--	--	--	68 J	370 UJ	410 UJ	410 U	380 U	370 U
PESTICIDES/PCBs													
4,4'-DDE	72-55-9	µg/kg					--	--	--	--	--	--	--
Endrin	72-20-8	µg/kg					--	--	--	--	--	--	--
Endrin aldehyde	7421-93-4	µg/kg					--	--	--	--	--	--	--
4,4'-DDD	72-54-8	µg/kg					--	--	--	--	--	--	--
4,4'-DDT	50-29-3	µg/kg					--	--	--	--	--	--	--
Aroclor 1260	1336-36-3	µg/kg					--	--	--	--	--	--	--
Metals													
Aluminum	7429-90-5	mg/kg		--	--	--	--	--	--	--	--	--	--
Antimony	7440-36-0	mg/kg		--	--	--	--	--	--	--	--	--	--
Arsenic	7440-38-2	mg/kg		--	--	--	--	--	--	--	--	--	--
Barium	7440-39-3	mg/kg		--	--	--	--	4.1	37.1	1.6	3.5	4.6	4.3
Beryllium	7440-41-7	mg/kg		--	--	--	--	--	--	--	--	--	--
Cadmium	7440-43-9	mg/kg		--	--	--	--	--	--	--	--	--	--
Calcium	7440-70-2	mg/kg		--	--	--	--	--	--	--	--	--	--
Chromium	7440-47-3	mg/kg		--	--	--	--	337	21.4	13.2	19.2	36.1	14.1
Chromium VI	18540-29-9	mg/kg		--	--	--	--	350 J	0.11 UJ	0.12 UJ	0.12 UJ	0.17 J	0.12 J
Cobalt	7440-48-4	mg/kg		--	--	--	--	--	--	--	--	--	--
Copper	7440-50-8	mg/kg		--	--	--	--	--	--	--	--	--	--
Iron	7439-89-6	mg/kg		--	--	--	--	--	--	--	--	--	--
Lead	7439-92-1	mg/kg		--	--	--	--	--	--	--	--	--	--
Magnesium	7439-95-4	mg/kg		--	--	--	--	--	--	--	--	--	--
Manganese	7439-96-5	mg/kg		--	--	--	--	--	--	--	--	--	--
Mercury	7439-97-6	mg/kg		--	--	--	--	--	--	--	--	--	--
Nickel	7440-02-0	mg/kg		--	--	--	--	--	--	--	--	--	--
Potassium	7440-09-7	mg/kg		--	--	--	--	--	--	--	--	--	--
Selenium	7782-49-2	mg/kg		--	--	--	--	--	--	--	--	--	--
Silver	7440-22-4	mg/kg		--	--	--	--	1.9	0.47 U	0.52 U	0.52 U	0.48 U	0.47 U
Sodium	7440-23-5	mg/kg		--	--	--	--	--	--	--	--	--	--
Thallium	7440-28-0	mg/kg		--	--	--	--	--	--	--	--	--	--
Vanadium	7440-62-2	mg/kg		--	--	--	--	--	--	--	--	--	--
Zinc	7440-66-6	mg/kg		--	--	--	--	--	--	--	--	--	--

J = Estimated Value
UJ = Analyte not detected; the number is the estimated analytical reporting limit.
U = Analyte not detected; the number is the analytical reporting limit.
R = Rejected during data validation
D = Diluted
ND = Not Detected
N = Presumptive Evidence; compound identification is not definitive
SB = Site Background
NS = No Standard
Concentration above NYSDEC Soil Criteria.
a) The highest result between samples SD-SS-GW03-0-0.5 and SD-SS-GW103-0-0.5 (dup of SD-SS-GW03-0-0.5) is reported.
c) The highest result between samples SS-04-0,18 and SS-04-0,18 DUP is reported.

Table J.7.3

Detected Chemicals in Groundwater and Screening Concentrations for Potential Vapor Intrusion of VOCs into Indoor Air

SADVA - AOCs 1 and 7

PARAMETER	CAS NUMBER	SAMPLE ID: SAMPLED: DEPTH ZONE: UNITS:	MAX VALUE	MAX VALUE AFFECTING INDOOR AIR	INDOOR AIR SCREENING VALUE (Risk = $1x10^{-6}$)	ACE-2 6/15/2006 Shallow	AMW-1 6/15/2006 Shallow	AMW-2 6/15/2006 Bedrock	AMW-3 6/14/2006 Shallow	AMW-4 6/14/2006 Shallow	AMW-104 6/14/2006 Unknown	GW-01 6/16/2006 Shallow	GW-03 6/16/2006 Shallow	GW-12 6/14/2006 Shallow	GW-13 6/16/2006 Shallow	GW-14 6/16/2006 Shallow	MW-2B 6/15/2006 Shallow	SD-GW11R-AOC-1 28-Jul-04 Bedrock	SD-GW13-AOC1 07-Dec-04 Shallow
VOLATILES																			
2-Butanone	78-93-3	µg/L	2.3	2.3	4.40E+05	100 U	15 U	2.3 J	5 U	2 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U	--	--
1,1-Dichloroethene	75-35-4	µg/L	4	4	1.90E+02	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane	107-06-2	µg/L	5	5	5.00E+00	20 U	1.4 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	--
1,2-Dichloroethene (total)**	540-59-0	µg/L	990	990	1.80E+02	530	78	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	--	--
cis-1,2-Dichloroethene	156-59-2	µg/L	930	930	2.10E+02	--	--	--	--	--	--	--	--	--	--	--	--	--	--
trans-1,2-Dichloroethene	156-60-5	µg/L	43	43	1.80E+02	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acetone	67-64-1	µg/L	1600	57	2.20E+05	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzene	71-43-2	µg/L	4	4	5.00E+00	20 U	3 U	1 U	1 U	0.28 J	0.81 J	1 U	1 U	1 U	1 U	1 U	1 U	--	--
Chlorobenzene	108-90-7	µg/L	2	2	3.90E+02	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methylene chloride	75-09-2	µg/L	4.8	4.8	5.80E+01	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Toluene	108-88-3	µg/L	0.62	0.6	1.50E+03	20 U	3 U	0.28 J	1 U	0.23 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.62 J	1 U
Trichloroethene	79-01-6	µg/L	300	300	5.00E+00	44	2.5 J	1 U	0.26 J	1 U	0.32 J	1 U	1 U	1 U	1 U	1 U	1 U	--	--
Vinyl chloride	75-01-4	µg/L	360	360	2.00E+00	160	21	1 U	1 U	1 J	3.4 J	1 U	1 U	1 U	1 U	1 U	1 U	--	--
Xylenes (total)***	1330-20-7	µg/L	0.7	0.7	2.20E+04	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SEMIVOLATILES																			
bis(2-Ethylhexyl) phthalate	117-81-7	µg/L	100			--	--	--	--	--	--	--	--	--	--	--	--	6.8	9.8 U
Butyl benzyl phthalate	85-68-7	µg/L	0.12			--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbazole	86-74-8	µg/L	0.13			--	--	--	--	--	--	--	--	--	--	--	--	--	--
Di-n-butyl phthalate	84-74-2	µg/L	5.4			--	--	--	--	--	--	--	--	--	--	--	--	5.4	1.1 J
Diethyl phthalate	84-66-2	µg/L	1.7			--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fluoranthene	206-44-0	µg/L	2.5			--	--	--	--	--	--	--	--	--	--	--	--	4.9 U	2.5 J
Pyrene	129-00-0	µg/L	0.95			--	--	--	--	--	--	--	--	--	--	--	--	4.9 U	0.95 J
PESTICIDES / PCBs																			
alpha-BHC	319-84-6	µg/L	0.0023			--	--	--	--	--	--	--	--	--	--	--	--	0.005 U	0.0023 J
gamma-BHC (Lindane)	58-89-9	µg/L	0.0017			--	--	--	--	--	--	--	--	--	--	--	--	0.005 U	0.0017 JN
4,4'-DDE	72-55-9	µg/L	0.023			--	--	--	--	--	--	--	--	--	--	--	--	--	--
4,4'-DDD	72-54-8	µg/L	0.035			--	--	--	--	--	--	--	--	--	--	--	--	0.005 U	0.027 J
4,4'-DDT	50-29-3	µg/L	0.087			--	--	--	--	--	--	--	--	--	--	--	--	0.0039 JN	0.014 JN
Endrin	72-20-8	µg/L	0.0077			--	--	--	--	--	--	--	--	--	--	--	--	0.005 U	0.0077 JN
Endrin Ketone	53494-70-5	µg/L	0.0027			--	--	--	--	--	--	--	--	--	--	--	--	0.005 U	0.0027 J
Endrin aldehyde	7421-93-4	µg/L	0.0065			--	--	--	--	--	--	--	--	--	--	--	--	0.0065 JN	0.0019 JN
METALS																			
Aluminum	7429-90-5	µg/L	389000			--	--	--	--	--	--	--	--	--	--	--	--	1860 J	8 U
Antimony	7440-36-0	µg/L	11.5			--	--	--	--	--	--	--	--	--	--	--	--	6.5 J	3.2 U
Arsenic	7440-38-2	µg/L	207			--	--	--	--	--	--	--	--	--	--	--	--	15.6	3.3 U
Barium	7440-39-3	µg/L	1990			--	--	--	--	--	--	--	--	--	--	--	--	116 J	36.5 J
Beryllium	7440-41-7	µg/L	20.7			--	--	--	--	--	--	--	--	--	--	--	--	1.2 J	0.71 J
Cadmium	7440-43-9	µg/L	9.1			--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	7440-70-2	µg/L				--	--	--	--	--	--	--	--	--	--	--	--	1690 J	441000
Chromium	7440-47-3	µg/L	544			--	--	--	--	--	--	--	--	--	--	--	--	3.3 J	7
Chromium VI	18540-29-9	µg/L				--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	7440-48-4	µg/L	423			--	--	--	--	--	--	--	--	--	--	--	--	1.1 J	0.53 U
Copper	7440-50-8	µg/L	989			--	--	--	--	--	--	--	--	--	--	--	--	14.1 J	1.2 J
Iron	7439-89-6	µg/L				--	--	--	--	--	--	--	--	--	--	--	--	2220 J	18 U
Lead	7439-92-1	µg/L	388			--	--	--	--	--	--	--	--	--	--	--	--	2.2 J	1.6 U
Magnesium	7439-95-4	µg/L				--	--	--	--	--	--	--	--	--	--	--	--	653 J	168000
Manganese	7439-96-5	µg/L	16200			--	--	--	--	--	--	--	--	--	--	--	--	30	90.2
Mercury	7439-97-6	µg/L	0.97			--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	7440-02-0	µg/L	857			--	--	--	--	--	--	--	--	--	--	--	--	7 J	2.4 J
Potassium	7440-09-7	µg/L				--	--	--	--	--	--	--	--	--	--	--	--	4240 J	47800
Selenium	7782-49-2	µg/L	84.5			--	--	--	--	--	--	--	--	--	--	--	--	11.2	8.4 J
Silver	7440-22-4	µg/L	4.1			--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	7440-23-5	µg/L				--	--	--	--	--	--	--	--	--	--	--	--	352000	74600
Strontium	7440-24-6	µg/L	269			--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	7440-28-0	µg/L	7.8			--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	7440-62-2	µg/L	704			--	--	--	--	--	--	--	--	--	--	--	--	8 J	4.9 J
Zinc	7440-66-6	µg/L	2090			--	--	--	--	--	--	--	--	--	--	--	--	339	30.6

B = The analyte was found in an associated blank, as well as in the sample.
J = The analyte was positively identified, the quantitation is an estimation.
U - The analyte was analyzed for, but not detected. The associated numerical value is the MDL.
* - Analytes also detected in Blank.
** - trans-1,2-Dichloroethene screening value used as a surrogate for 1,2-Dichloroethene (total).
*** - p-Xylene screening value used as a surrogate for Xylenes (total).
a) The highest result between samples 2AMW-7 and 2AMW-17 (dup of 2AMW-7) is reported.
b) The highest result between samples HP01 and HP04 (dup of HP01) is reported.
c) The highest result between samples MW-ACE3 and MW-ACE3 DUP is reported.
d) The highest result between samples MW-ACE2 and MW-ACE2 DUP is reported.

Table J.7.3
Detected Chemicals in Groundwater and Screening Concentrations for Potential Vapor Intrusion of VOCs into Indoor Air
SADVA - AOCs 1 and 7

		SAMPLE ID:	SD-GW01-AOC-7	SD-GW101-AOC-7	SD-GW02-AOC-7	SD-GW03-AOC-7	SD-2AMW5-AOC-1	SD-2AMW7-AOC-1	AOC-1 GW-11R	AMW-11	AMW-2	ACE-6	ACE-2	AMW-1	AOC7-2AMW-7	AOC7-2AMW-5
		SAMPLED:	21-Jul-04	21-Jul-04	22-Jul-04	22-Jul-04	21-Jul-04	21-Jul-04	11-Jan-01	29-Jun-00	29-Jun-00	29-Jun-00	29-Jun-00	29-Jun-00	16-Aug-00	16-Aug-00
		DEPTH ZONE:	Shallow	Shallow	Bedrock	Shallow	Shallow	Shallow	Bedrock	Bedrock	Bedrock	Shallow	Shallow	Shallow	Shallow	Shallow
PARAMETER	**CAS NUMBER**	UNITS:	UPGRADIENT	Dup of SD-GW01-AOC-7	DOWNGRADIENT		UPGRADIENT									
VOLATILES																
2-Butanone	78-93-3	µg/L							5 UJ	--	--	--	--	--	R	R
1,1-Dichloroethene	75-35-4	µg/L							1 U	--	--	--	--	--	1 U	1 U
1,2-Dichloroethane	107-06-2	µg/L							1 U	--	--	--	--	--	1 U	1 U
1,2-Dichloroethene (total)**	540-59-0	µg/L							1 U	ND	ND	ND	990	120	1 U	1 U
cis-1,2-Dichloroethene	156-59-2	µg/L							1 U	--	--	--	--	--	1 U	1 U
trans-1,2-Dichloroethene	156-60-5	µg/L							1 U	--	--	--	--	--	--	--
Acetone	67-64-1	µg/L							4.3 J	--	--	--	--	--	10 U	10 U
Benzene	71-43-2	µg/L							1 U	--	--	--	--	--	1 U	1 U
Chlorobenzene	108-90-7	µg/L							1 U	--	--	--	--	--	1 U	1 U
Methylene chloride	75-09-2	µg/L							2 U	--	--	--	--	--	2 U	2 U
Toluene	108-88-3	µg/L							0.3 J	--	--	--	--	--	1 U	1 U
Trichloroethene	79-01-6	µg/L							1 U	ND	ND	ND	300	11	1 U	1 U
Vinyl chloride	75-01-4	µg/L							2 U	ND	ND	ND	270	42	2 U	2 U
Xylenes (total)***	1330-20-7	µg/L							1 U	--	--	--	--	--	1 U	1 U
SEMIVOLATILES																
bis(2-Ethylhexyl) phthalate	117-81-7	µg/L	22 J	1.6 J	16	7.6	27	4.1 J	10 U	--	--	--	--	--	5.9 J	15
Butyl benzyl phthalate	85-68-7	µg/L	4.7 U	4.8 U	4.8 U	4.7 U	0.12 J	4.8 U	10 U	--	--	--	--	--	10 U	10 U
Carbazole	86-74-8	µg/L	4.7 U	4.8 U	4.8 U	4.7 U	0.13 J	4.8 U	10 U	--	--	--	--	--	10 U	10 U
Di-n-butyl phthalate	84-74-2	µg/L	4.7 U	4.8 U	4.8 U	4.7 U	0.28 J	4.8 U	10 U	--	--	--	--	--	10 U	10 U
Diethyl phthalate	84-66-2	µg/L	4.7 U	4.8 U	1.7 J	4.7 U	0.35 J	1.6 J	10 U	--	--	--	--	--	10 U	10 U
Fluoranthene	206-44-0	µg/L	4.7 U	4.8 U	4.8 U	4.7 U	0.2 J	4.8 U	10 U	--	--	--	--	--	10 U	10 U
Pyrene	129-00-0	µg/L	4.7 U	4.8 U	4.8 U	4.7 U	0.17 J	4.8 U	10 U	--	--	--	--	--	10 U	10 U
PESTICIDES / PCBs																
alpha-BHC	319-84-6	µg/L							0.05 U	--	--	--	--	--	0.05 U	0.05 U
gamma-BHC (Lindane)	58-89-9	µg/L							0.05 U	--	--	--	--	--	0.05 U	0.05 U
4,4'-DDE	72-55-9	µg/L							0.05 U	--	--	--	--	--	0.05 U	0.05 U
4,4'-DDD	72-54-8	µg/L							0.05 U	--	--	--	--	--	0.05 U	0.05 U
4,4'-DDT	50-29-3	µg/L							0.05 U	--	--	--	--	--	0.05 U	0.05 U
Endrin	72-20-8	µg/L							0.05 U	--	--	--	--	--	0.05 U	0.05 U
Endrin Ketone	53494-70-5	µg/L							0.05 U	--	--	--	--	--	0.05 U	0.05 U
Endrin aldehyde	7421-93-4	µg/L							0.05 U	--	--	--	--	--	0.05 U	0.05 U
METALS																
Aluminum	7429-90-5	µg/L	12.1 J	13.7 J	59.9 J	27.4 J	79.4 J	29.5 J	12800	--	--	--	--	--	3560	1600
Antimony	7440-36-0	µg/L							11.5 J	--	--	--	--	--	1.5 U	1.5 U
Arsenic	7440-38-2	µg/L	3.3 U	3.3 U	3.3 U	3.3 U	11.6	3.3 U	131	--	--	--	--	--	2.6 U	14.7
Barium	7440-39-3	µg/L	38.1 J	40.7 J	197 J	10.4 J	41.6 J	16.3 J	357	--	--	--	--	--	33.8 J	44.6 J
Beryllium	7440-41-7	µg/L	0.53 J	0.48 J	0.42 U	0.42 U	0.42 U	0.42 U	0.8 J	--	--	--	--	--	0.12 J	0.071 U
Cadmium	7440-43-9	µg/L							0.49 U	--	--	--	--	--	0.49 U	0.49 U
Calcium	7440-70-2	µg/L	184000	185000	97600	161000	226000	274000	2810 J	--	--	--	--	--	238000	250000
Chromium	7440-47-3	µg/L							21	--	--	--	--	--	4 J	1.8 J
Chromium VI	18540-29-9	µg/L							--	--	--	--	--	--	--	--
Cobalt	7440-48-4	µg/L							5.6 J	--	--	--	--	--	3.2 U	3.2 U
Copper	7440-50-8	µg/L	1.2 U	1.2 U	1.2 U	2 J	4.6 J	1.2 U	25.4	--	--	--	--	--	6.8 J	63.3 U
Iron	7439-89-6	µg/L	2840	3100	5360	18 U	2540	18 U	12800	--	--	--	--	--	3010	3880
Lead	7439-92-1	µg/L	1.6 U	1.6 U	1.6 U	1.6 U	1.6 J	1.6 U	15.8	--	--	--	--	--	2 J	5.2
Magnesium	7439-95-4	µg/L	128000	131000	15100	29900	47000	178000	3210 J	--	--	--	--	--	111000	49500
Manganese	7439-96-5	µg/L	1480	1700	456	59	810	135	120	--	--	--	--	--	1980	124
Mercury	7439-97-6	µg/L							0.049 J	--	--	--	--	--	0.045 U	0.045 U
Nickel	7440-02-0	µg/L	1.2 U	1.2 U	1.2 U	1.2 U	2 J	1.2 U	17.3 J	--	--	--	--	--	6.1 U	6.1 U
Potassium	7440-09-7	µg/L	3820 J	4500 J	1140 J	296 J	5740	1090 J	9060	--	--	--	--	--	2270 J	7460
Selenium	7782-49-2	µg/L							84.5	--	--	--	--	--	2.1 U	2.3 J
Silver	7440-22-4	µg/L	0.59 J	0.75 J	0.3 U	0.3 U	0.3 U	0.3 U	0.94 U	--	--	--	--	--	0.94 U	0.94 U
Sodium	7440-23-5	µg/L	37300	38900	19200	5510	9730	24100	437000	--	--	--	--	--	15900	8780
Strontium	7440-24-6	µg/L							3.9 U	--	--	--	--	--	--	--
Thallium	7440-28-0	µg/L							--	--	--	--	--	--	3.9 U	3.9 U
Vanadium	7440-62-2	µg/L	1 U	1 U	1 U	1.1 J	5.4 J	7.6 J	61.7	--	--	--	--	--	10.1 J	4.4 J
Zinc	7440-66-6	µg/L	3.4 J	4 J	2.1 J	12.4 J	11.6 J	6.6 J	21.2	--	--	--	--	--	22.3	17.5 J

B = The analyte was found in an associated blank, as well as in the sample.
J = The analyte was positively identified, the quantitation is an estimation.
U - The analyte was analyzed for, but not detected. The associated numerical value is the MDL
* - Analytes also detected in Blank.
** - trans-1,2-Dichloroethene screening value used as a surrogate for 1,2-Dichloroethene (total)
*** - p-Xylene screening value used as a surrogate for Xylenes (total).
a) The highest result between samples 2AMW-7 and 2AMW-17 (dup of 2AMW-7) is reported.
b) The highest result between samples HP01 and HP04 (dup of HP01) is reported.
c) The highest result between samples MW-ACE3 and MW-ACE3 DUP is reported.
d) The highest result between samples MW-ACE2 and MW-ACE2 DUP is reported.

Table J.7.3
Detected Chemicals in Groundwater and Screening Concentrations for Potential Vapor Intrusion of VOCs into Indoor Air
SADVA - AOCs 1 and 7

PARAMETER	CAS NUMBER	SAMPLE ID: / SAMPLED: / DEPTH ZONE: / UNITS:	AOC7-2AMW-7 [a] 16-Aug-00 Shallow	AOC7-HP01 [b] 02-Aug-00 Shallow	AOC7-HP02 31-Jul-00 Shallow	AOC7-HP03 31-Jul-00 Shallow	AOC7-HP04 8/2/2000 Shallow	MW-ACE4 23-Jul-96 Unknown	MW-ACE3 [c] 23-Jul-96 Shallow	MW-2-2 24-Jul-96 Unknown	MW-ACE5 24-Jul-96 Unknown	MW-2BMW9 24-Jul-96 Shallow	MW-2AMW6 24-Jul-96 Shallow	MW-2AMW8 24-Jul-96 Shallow	MW-2AMW3 24-Jul-96 Unknown	MW-ACE2 [d] 25-Jul-96 Shallow
VOLATILES																
2-Butanone	78-93-3	µg/L	R	R	ND	ND		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	75-35-4	µg/L	1 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	4 J
1,2-Dichloroethane	107-06-2	µg/L	1 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5
1,2-Dichloroethene (total)**	540-59-0	µg/L	1 U	1 U	1 U	1 U	1 U		--	--	--	--	--	--	--	--
cis-1,2-Dichloroethene	156-59-2	µg/L	1 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	930
trans-1,2-Dichloroethene	156-60-5	µg/L	--	--	--	--	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	43
Acetone	67-64-1	µg/L	10 U	4.2 J	2.4 J	10 U	4.2 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	71-43-2	µg/L	1 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	4 J
Chlorobenzene	108-90-7	µg/L	1 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	2 J
Methylene chloride	75-09-2	µg/L	2 U	2 U	2 U	2 U	2 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	108-88-3	µg/L	1 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.6 J
Trichloroethene	79-01-6	µg/L	1 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	160
Vinyl chloride	75-01-4	µg/L	2 U	2 U	2 U	2 U	2 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	360 D
Xylenes (total)***	1330-20-7	µg/L	1 U	1 U	1 U	1 U	1 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	0.7 J
SEMIVOLATILES																
bis(2-Ethylhexyl) phthalate	117-81-7	µg/L	27 J	69	100	13	8.5 J	--	--	--	--	--	--	--	--	--
Butyl benzyl phthalate	85-68-7	µg/L	10 U	10 U	10 U	10 U	10 U	--	--	--	--	--	--	--	--	--
Carbazole	86-74-8	µg/L	10 U	10 U	10 U	10 U	10 U	--	--	--	--	--	--	--	--	--
Di-n-butyl phthalate	84-74-2	µg/L	10 U	10 U	10 U	10 U	10 U	--	--	--	--	--	--	--	--	--
Diethyl phthalate	84-66-2	µg/L	10 U	10 U	10 U	10 U	10 U	--	--	--	--	--	--	--	--	--
Fluoranthene	206-44-0	µg/L	10 U	10 U	10 U	10 U	10 U	--	--	--	--	--	--	--	--	--
Pyrene	129-00-0	µg/L	10 U	10 U	10 U	10 U	10 U	--	--	--	--	--	--	--	--	--
PESTICIDES / PCBs																
alpha-BHC	319-84-6	µg/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--	--	--	--	--	--	--	--	--
gamma-BHC (Lindane)	58-89-9	µg/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--	--	--	--	--	--	--	--	--
4,4'-DDE	72-55-9	µg/L	0.05 U	0.05 U	0.05 U	0.023 J	0.05 U	--	--	--	--	--	--	--	--	--
4,4'-DDD	72-54-8	µg/L	0.05 U	0.05 U	0.05 U	0.035 JN	0.05 U	--	--	--	--	--	--	--	--	--
4,4'-DDT	50-29-3	µg/L	0.05 U	0.05 U	0.05 U	0.087	0.05 U	--	--	--	--	--	--	--	--	--
Endrin	72-20-8	µg/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--	--	--	--	--	--	--	--	--
Endrin Ketone	53494-70-5	µg/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--	--	--	--	--	--	--	--	--
Endrin aldehyde	7421-93-4	µg/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	--	--	--	--	--	--	--	--	--
METALS																
Aluminum	7429-90-5	µg/L	3560	5940	389000	19600	5310	--	--	--	--	--	--	--	--	--
Antimony	7440-36-0	µg/L	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	--	--	--	--	--	--	--	--	--
Arsenic	7440-38-2	µg/L	2.6 U	4.8 J	207	10.2	2.7 J	10	5	6	2 U	2 U	2 U	82	5	6
Barium	7440-39-3	µg/L	33.8 J	85 J	1990	187 J	72.3 J	104	42	79	13	28	14	51	107	131
Beryllium	7440-41-7	µg/L	0.12 J	0.41 J	20.7	1.2 J	0.41 J	--	--	--	--	--	--	--	--	--
Cadmium	7440-43-9	µg/L	0.49 U	0.49 U	9.1 J	0.49 U	0.49 U	--	--	--	--	--	--	--	--	--
Calcium	7440-70-2	µg/L	238000	255000	694000	147000	255000	--	--	--	--	--	--	--	--	--
Chromium	7440-47-3	µg/L	4 J	11.9	544	31.1	11.2	22	17	18	4 U	4 U	4 U	50	34	18
Chromium VI	18540-29-9	µg/L	--	--	--	--	--	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Cobalt	7440-48-4	µg/L	3.2 U	3.8 J	423	15 J	3.2 U	--	--	--	--	--	--	--	--	--
Copper	7440-50-8	µg/L	10.3 J	13.8 J	989	37.7	13.3 J	--	--	--	--	--	--	--	--	--
Iron	7439-89-6	µg/L	3010	9920	912000	31200	8910	--	--	--	--	--	--	--	--	--
Lead	7439-92-1	µg/L	2 J	4.9	388	12.1	4.9	6 U	2 U	6 U	6 U	6 U	6 U	2 U	13	79
Magnesium	7439-95-4	µg/L	111000	106000	313000	40000	96200	--	--	--	--	--	--	--	--	--
Manganese	7439-96-5	µg/L	2700	461	16200	989	422	--	--	--	--	--	--	--	--	--
Mercury	7439-97-6	µg/L	0.045 U	0.069 J	0.97	0.067 J	0.06 J	--	--	--	--	--	--	--	--	--
Nickel	7440-02-0	µg/L	6.1 U	12.4 J	857	46.5	8.1 J	--	--	--	--	--	--	--	--	--
Potassium	7440-09-7	µg/L	2270 J	46800	73700	17100	32000	--	--	--	--	--	--	--	--	--
Selenium	7782-49-2	µg/L	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	--	--	--	--	--	--	--	--	--
Silver	7440-22-4	µg/L	0.94 U	0.94 U	4.1 J	0.94 U	0.94 U	--	--	--	--	--	--	--	--	--
Sodium	7440-23-5	µg/L	15900	143000	74700	14300	134000	--	--	--	--	--	--	--	--	--
Strontium	7440-24-6	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	7440-28-0	µg/L	3.9 U	3.9 U	7.8	3.9 U	3.9 U	--	--	--	--	--	--	--	--	--
Vanadium	7440-62-2	µg/L	10.1 J	15.8 J	704	41.5 J	15.6 J	--	--	--	--	--	--	--	--	--
Zinc	7440-66-6	µg/L	22.3	56.9	2090	109	46.8	--	--	--	--	--	--	--	--	--

B = The analyte was found in an associated blank, as well as in the sample.
J = The analyte was positively identified, the quantitation is an estimation.
U - The analyte was analyzed for, but not detected. The associated numerical value is the MDL
* - Analytes also detected in Blank.
** - trans-1,2-Dichloroethene screening value used as a surrogate for 1,2-Dichloroethene (total)
*** - p-Xylene screening value used as a surrogate for Xylenes (total).
a) The highest result between samples 2AMW-7 and 2AMW-17 (dup of 2AMW-7) is reported.
b) The highest result between samples HP01 and HP04 (dup of HP01) is reported.
c) The highest result between samples MW-ACE3 and MW-ACE3 DUP is reported.
d) The highest result between samples MW-ACE2 and MW-ACE2 DUP is reported.

Table J.7.3
Detected Chemicals in Groundwater and Screening Concentrations for Potential Vapor Intrusion of VOCs into Indoor Air
SADVA - AOCs 1 and 7

PARAMETER	CAS NUMBER	SAMPLE ID: / SAMPLED: / DEPTH ZONE: / UNITS:	MW-AMW1	MW-AMW2	MW-AMW11	E4800	E4801	E4802	E4803	E4804	E4806	E4807	E4808	E4809	E4810
		SAMPLED:	25-Jul-96	26-Jul-96	30-Jul-96	27-Aug-90	27-Aug-90	27-Aug-90	27-Aug-90	27-Aug-90	27-Aug-90	27-Aug-90	27-Aug-90	27-Aug-90	27-Aug-90
		DEPTH ZONE:	Shallow	Bedrock	Bedrock	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
VOLATILES															
2-Butanone	78-93-3	µg/L	5 U	5 U	50 UJ	--	--	--	--		--	--	--	--	--
1,1-Dichloroethene	75-35-4	µg/L	5 U	5 U	50 UJ	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane	107-06-2	µg/L	3 J	5 U	50 UJ	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethene (total)**	540-59-0	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
cis-1,2-Dichloroethene	156-59-2	µg/L	87	5 U	50 UJ	--	--	--	--	--	--	--	--	--	--
trans-1,2-Dichloroethene	156-60-5	µg/L	14	5 U	50 UJ	--	--	--	--	--	--	--	--	--	--
Acetone	67-64-1	µg/L	5 U	5 U	1600 DJ	29 *	21 *	20 *	--	--	--	--	--	--	--
Benzene	71-43-2	µg/L	5 U	5 U	50 UJ	--	--	--	--	--	--	--	--	--	--
Chlorobenzene	108-90-7	µg/L	5 U	5 U	50 UJ	--	--	--	--	--	--	--	--	--	--
Methylene chloride	75-09-2	µg/L	5 U	5 U	50 UJ	2.4 *	4.8 *	1.9 *	--	2.6 *	1.6 *	1.2 *	2.3 *	1.1 *	3.4 *
Toluene	108-88-3	µg/L	5 U	5 U	50 UJ	--	--	--	--	--	--	--	--	--	--
Trichloroethene	79-01-6	µg/L	12	5 U	50 UJ	--	--	--	--	--	--	--	--	--	--
Vinyl chloride	75-01-4	µg/L	66	5 U	50 UJ	--	--	--	--	--	--	--	--	--	--
Xylenes (total)***	1330-20-7	µg/L	5 U	5 U	50 UJ	--	--	--	--	--	--	--	--	--	--
SEMIVOLATILES															
bis(2-Ethylhexyl) phthalate	117-81-7	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Butyl benzyl phthalate	85-68-7	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbazole	86-74-8	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Di-n-butyl phthalate	84-74-2	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Diethyl phthalate	84-66-2	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Fluoranthene	206-44-0	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Pyrene	129-00-0	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
PESTICIDES / PCBs															
alpha-BHC	319-84-6	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
gamma-BHC (Lindane)	58-89-9	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
4,4'-DDE	72-55-9	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
4,4'-DDD	72-54-8	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
4,4'-DDT	50-29-3	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Endrin	72-20-8	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Endrin Ketone	53494-70-5	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Endrin aldehyde	7421-93-4	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
METALS															
Aluminum	7429-90-5	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	7440-36-0	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	7440-38-2	µg/L	2 U	2 U	NA	--	--	--	--	--	--	--	--	--	--
Barium	7440-39-3	µg/L	44	69	NA	--	--	--	319	--	--	--	--	--	--
Beryllium	7440-41-7	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	7440-43-9	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	7440-70-2	µg/L	--	--	--	--	--	--	1.7	--	--	--	--	--	--
Chromium	7440-47-3	µg/L	4 U	7	NA	--	10	10	44	30	--	20	--	--	20
Chromium VI	18540-29-9	µg/L	20 U	20 UJ	NA	--	--	--	--	--	--	--	--	--	--
Cobalt	7440-48-4	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	7440-50-8	µg/L	--	--	--	--	--	--	55	--	--	--	--	--	--
Iron	7439-89-6	µg/L	--	--	--	--	--	--	6	--	--	--	--	--	--
Lead	7439-92-1	µg/L	2	2	NA	--	--	--	--	--	--	--	--	--	--
Magnesium	7439-95-4	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	7439-96-5	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	7439-97-6	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	7440-02-0	µg/L	--	--	--	--	--	--	3.4	--	--	--	--	--	--
Potassium	7440-09-7	µg/L	--	--	--	--	--	--	397	--	--	--	--	--	--
Selenium	7782-49-2	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	7440-22-4	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	7440-23-5	µg/L	--	--	--	--	--	--	456	--	--	--	--	--	--
Strontium	7440-24-6	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	7440-28-0	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	7440-62-2	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	7440-66-6	µg/L	--	--	--	10	20	20	--	30	30	30	20	10	20

B = The analyte was found in an associated blank, as well as in the sample.
J = The analyte was positively identified, the quantitation is an estimation.
U - The analyte was analyzed for, but not detected. The associated numerical value is the MDL
* - Analytes also detected in Blank.
** - trans-1,2-Dichloroethene screening value used as a surrogate for 1,2-Dichloroethene (total)
*** - p-Xylene screening value used as a surrogate for Xylenes (total).
a) The highest result between samples 2AMW-7 and 2AMW-17 (dup of 2AMW-7) is reported.
b) The highest result between samples HP01 and HP04 (dup of HP01) is reported.
c) The highest result between samples MW-ACE3 and MW-ACE3 DUP is reported.
d) The highest result between samples MW-ACE2 and MW-ACE2 DUP is reported.

Table J.7.3
Detected Chemicals in Groundwater and Screening Concentrations for Potential Vapor Intrusion of VOCs into Indoor Air
SADVA - AOCs 1 and 7

PARAMETER	CAS NUMBER	SAMPLE ID: / SAMPLED: / DEPTH ZONE: / UNITS:	E4811 27-Aug-90 Unknown	E4812 27-Aug-90 Unknown	E4813 27-Aug-90 Unknown	E4880 27-Aug-90 Unknown	E4794 27-Aug-90 Unknown	E4795 27-Aug-90 Unknown	E4796 27-Aug-90 Unknown	E5306 27-Aug-90 Unknown	E4797 27-Aug-90 Unknown	MW-1 1988 Unknown	MW-2 1988 Unknown	MW-3 1988 Unknown	MW-4 1988 Unknown
VOLATILES															
2-Butanone	78-93-3	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethene	75-35-4	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane	107-06-2	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethene (total)**	540-59-0	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
cis-1,2-Dichloroethene	156-59-2	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
trans-1,2-Dichloroethene	156-60-5	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Acetone	67-64-1	µg/L	22 *	--	15 *	--	21 *	57 *	42 *	--	22 *	--	--	--	--
Benzene	71-43-2	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Chlorobenzene	108-90-7	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Methylene chloride	75-09-2	µg/L	2.1 *	1.1 *	2.6 *	--	1.6 *	1.4 *	2.4 *	1.2 *	2.8 *	--	--	--	--
Toluene	108-88-3	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Trichloroethene	79-01-6	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl chloride	75-01-4	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Xylenes (total)***	1330-20-7	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
SEMIVOLATILES															
bis(2-Ethylhexyl) phthalate	117-81-7	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Butyl benzyl phthalate	85-68-7	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbazole	86-74-8	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Di-n-butyl phthalate	84-74-2	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Diethyl phthalate	84-66-2	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Fluoranthene	206-44-0	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Pyrene	129-00-0	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
PESTICIDES / PCBs															
alpha-BHC	319-84-6	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
gamma-BHC (Lindane)	58-89-9	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
4,4'-DDE	72-55-9	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
4,4'-DDD	72-54-8	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
4,4'-DDT	50-29-3	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Endrin	72-20-8	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Endrin Ketone	53494-70-5	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Endrin aldehyde	7421-93-4	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
METALS															
Aluminum	7429-90-5	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	7440-36-0	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	7440-38-2	µg/L	--	--	--	--	--	--	--	7.9	--	6.6	31	28	23
Barium	7440-39-3	µg/L	--	--	--	63	--	--	--	--	73	82	356	187	232
Beryllium	7440-41-7	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	7440-43-9	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	7440-70-2	µg/L	--	--	--	94	--	--	--	--	--	--	--	--	--
Chromium	7440-47-3	µg/L	10	--	50	10	30	20	90	30	--	19	144	83	66
Chromium VI	18540-29-9	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	7440-48-4	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	7440-50-8	µg/L	--	--	--	29	--	--	--	--	107	--	--	--	--
Iron	7439-89-6	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	7439-92-1	µg/L	--	--	--	49	--	--	--	--	--	14	90	66	69
Magnesium	7439-95-4	µg/L	--	--	--	797	--	--	--	--	--	--	--	--	--
Manganese	7439-96-5	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	7439-97-6	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	7440-02-0	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	7440-09-7	µg/L	--	--	--	29.6	--	--	--	--	2.2	--	--	--	--
Selenium	7782-49-2	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	7440-22-4	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	7440-23-5	µg/L	--	--	--	--	--	--	--	--	338	--	--	--	--
Strontium	7440-24-6	µg/L	--	--	--	23	--	--	--	--	269	--	--	--	--
Thallium	7440-28-0	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	7440-62-2	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	7440-66-6	µg/L	20	20	140	--	30	47	80	10	--	--	--	--	--

B = The analyte was found in an associated blank, as well as in the sample.
J = The analyte was positively identified, the quantitation is an estimation.
U - The analyte was analyzed for, but not detected. The associated numerical value is the MDL
* - Analytes also detected in Blank.
** - trans-1,2-Dichloroethene screening value used as a surrogate for 1,2-Dichloroethene (total)
*** - p-Xylene screening value used as a surrogate for Xylenes (total).
a) The highest result between samples 2AMW-7 and 2AMW-17 (dup of 2AMW-7) is reported.
b) The highest result between samples HP01 and HP04 (dup of HP01) is reported.
c) The highest result between samples MW-ACE3 and MW-ACE3 DUP is reported.
d) The highest result between samples MW-ACE2 and MW-ACE2 DUP is reported.

Table J.7.3a
Detected Chemicals in Groundwater and NYSDEC Screening Concentrations for Groundwater Quality
Former Schenectedy Army Depot - Voorheesville Area

				SAMPLE ID:	MW-ACE2 [d]	ACE-2	ACE-2		MW-AMW1	AMW-1	AMW-1		MW-AMW2	AMW-2	AMW-2		MW-AMW11	AMW-11	AOC-1 GW-11R	SD-GW11R-AOC-1		AMW-3
				SAMPLED:	25-Jul-96	29-Jun-00	6/15/2006		25-Jul-96	29-Jun-00	6/15/2006		26-Jul-96	29-Jun-00	6/15/2006		30-Jul-96	29-Jun-00	11-Jan-01	28-Jul-04		6/14/2006
				DEPTH ZONE:	Shallow	Shallow	Shallow		Shallow	Shallow	Shallow		Bedrock	Bedrock	Bedrock		Bedrock	Bedrock	Bedrock	Bedrock		Shallow
PARAMETER	**CAS NUMBER**	**NYSDEC Recommended Cleanup Objective (µg/L)**	**Basis of NYSDEC Cleanup Objective**	UNITS:				ACE-2 EPC				AMW-1 EPC				AMW-2 EPC					AMW-11 EPC	
VOLATILES																						
2-Butanone	78-93-3	50	H(WS)	µg/L	5 U	--	100 U		5 U	--	15 U		5 U	--	2.3 J	2.3	50 UJ	--	5 UJ	--		5 U
1,1-Dichloroethene	75-35-4	5	H(WS)	µg/L	4 J	--	--	4	5 U	--	--		5 U	--	--		50 UJ	--	1 U	--		--
1,2-Dichloroethane	107-06-2	0.6	H(WS)	µg/L	**5**	--	20 U	5	**3** J	--	**1.4** J	2.2	5 U	--	1 U		50 UJ	--	1 U	--		1 U
1,2-Dichloroethene (total)**	540-59-0			µg/L	973	990	530	530	--	120	78	99	--	ND	1 U		--	ND	1 U	--		1 U
cis-1,2-Dichloroethene	156-59-2	5	H(WS)	µg/L		--	--	0	**87**	--	--	87	5 U	--	--		50 UJ	--	1 U	--		--
trans-1,2-Dichloroethene	156-60-5	5	H(WS)	µg/L		--	--	0	**14**	--	--	14	5 U	--	--		50 UJ	--	1 U	--		--
Acetone	67-64-1	50	H(WS)	µg/L	5 U	--	--		5 U	--	--		5 U	--	--		**1600** DJ	--	4.3 J	--	802.15	--
Benzene	71-43-2	1	H(WS)	µg/L	4 J	--	20 U	4	5 U	--	3 U		5 U	--	1 U		50 UJ	--	1 U	--		1 U
Chlorobenzene	108-90-7	5	H(WS)	µg/L	2 J	--	--	2	5 U	--	--		5 U	--	--		50 UJ	--	1 U	--		--
Methylene chloride	75-09-2	5	H(WS)	µg/L	5 U	--	--		5 U	--	--		5 U	--	--		50 UJ	--	2 U	--		--
Toluene	108-88-3	5	H(WS)	µg/L	0.6 J	--	20 U	0.6	5 U	--	3 U		5 U	--	0.28 J	0.28	50 UJ	--	0.3 J	0.62 J	25.15	1 U
Trichloroethene	79-01-6	5	H(WS)	µg/L	160	300	44	168	12	11	2.5 J	2.5	5 U	ND	1 U		50 UJ	ND	1 U	--		0.26 J
Vinyl chloride	75-01-4	2	H(WS)	µg/L	360 D	270	160	160	66	42	21	21	5 U	ND	1 U		50 UJ	ND	2 U	--		1 U
Xylenes (total)***	1330-20-7			µg/L	0.7 J	--	--	0.7	5 U	--	--		5 U	--	--		50 UJ	--	1 U	--		--
SEMIVOLATILES																						
bis(2-Ethylhexyl) phthalate	117-81-7	5	H(WS)	µg/L	--	--	--		--	--	--		--	--	--		--	--	10 U	**6.8**	6.8	--
Butyl benzyl phthalate	85-68-7	50	H(WS)	µg/L	--	--	--		--	--	--		--	--	--		--	--	10 U	--		--
Carbazole	86-74-8			µg/L	--	--	--		--	--	--		--	--	--		--	--	10 U	--		--
Di-n-butyl phthalate	84-74-2	50	H(WS)	µg/L	--	--	--		--	--	--		--	--	--		--	--	10 U	5.4	5.4	--
Diethyl phthalate	84-66-2			µg/L	--	--	--		--	--	--		--	--	--		--	--	10 U	--		--
Fluoranthene	206-44-0	50	H(WS)	µg/L	--	--	--		--	--	--		--	--	--		--	--	10 U	4.9 U		--
Pyrene	129-00-0	50	H(WS)	µg/L	--	--	--		--	--	--		--	--	--		--	--	10 U	4.9 U		--
PESTICIDES / PCBs																						
alpha-BHC	319-84-6	0.01	H(WS)	µg/L	--	--	--		--	--	--		--	--	--		--	--	0.05 U	0.005 U		--
gamma-BHC (Lindane)	58-89-9	0.05	H(WS)	µg/L	--	--	--		--	--	--		--	--	--		--	--	0.05 U	0.005 U		--
4,4'-DDE	72-55-9	0.2	H(WS)	µg/L	--	--	--		--	--	--		--	--	--		--	--	0.05 U	--		--
4,4'-DDD	72-54-8	0.3	H(WS)	µg/L	--	--	--		--	--	--		--	--	--		--	--	0.05 U	0.005 U		--
4,4'-DDT	50-29-3	0.2	H(WS)	µg/L	--	--	--		--	--	--		--	--	--		--	--	0.05 U	0.0039 JN	0.0039	--
Endrin	72-20-8			µg/L	--	--	--		--	--	--		--	--	--		--	--	0.05 U	0.005 U		--
Endrin Ketone	53494-70-5	5	H(WS)	µg/L	--	--	--		--	--	--		--	--	--		--	--	0.05 U	0.005 U		--
Endrin aldehyde	7421-93-4	5	H(WS)	µg/L	--	--	--		--	--	--		--	--	--		--	--	0.05 U	0.0065 JN	0.0065	--
METALS																						
Aluminum	7429-90-5			µg/L	--	--	--		--	--	--		--	--	--		--	--	12800	1860 J	7330	--
Antimony	7440-36-0	3	H(WS)	µg/L	--	--	--		--	--	--		--	--	--		--	--	**11.5** J	**6.5** J	9	--
Arsenic	7440-38-2	25	H(WS)	µg/L	6	--	--	6	2 U	--	--		2 U	--	--		NA	--	131	15.6	73.3	--
Barium	7440-39-3	1000	H(WS)	µg/L	131	--	--	131	44	--	--	44	69	--	--	69	NA	--	357	116 J	236.5	--
Beryllium	7440-41-7	3	H(WS)	µg/L	--	--	--		--	--	--		--	--	--		--	--	0.8 J	1.2 J	1	--
Cadmium	7440-43-9	5	H(WS)	µg/L	--	--	--		--	--	--		--	--	--		--	--	0.49 U	--		--
Calcium	7440-70-2			µg/L	--	--	--		--	--	--		--	--	--		--	--	2810 J	1690 J	2250	--
Chromium	7440-47-3	50	H(WS)	µg/L	18	--	--	18	4 U	--	--		7	--	--	7	NA	--	21	3.3 J	12.15	--
Chromium VI	18540-29-9	50	H(WS)	µg/L	20 U	--	--		20 U	--	--		20 UJ	--	--		NA	--	--	--		--
Cobalt	7440-48-4			µg/L	--	--	--		--	--	--		--	--	--		--	--	5.6 J	1.1 J	3.35	--
Copper	7440-50-8	200	H(WS)	µg/L	--	--	--		--	--	--		--	--	--		--	--	25.4	14.1 J	19.75	--
Iron	7439-89-6	300	E	µg/L	--	--	--		--	--	--		--	--	--		--	--	**12800**	**2220** J	**7510**	--
Lead	7439-92-1	25	H(WS)	µg/L	**79**	--	--	79	2	--	--	2	2	--	--	2	NA	--	15.8	2.2 J	9	--
Magnesium	7439-95-4	35000	H(WS)	µg/L	--	--	--		--	--	--		--	--	--		--	--	3210 J	653 J	1931.5	--
Manganese	7439-96-5			µg/L	--	--	--		--	--	--		--	--	--		--	--	120	30	75	--
Mercury	7439-97-6	0.7	H(WS)	µg/L	--	--	--		--	--	--		--	--	--		--	--	0.049 J	--	0.049	--
Nickel	7440-02-0	100	H(WS)	µg/L	--	--	--		--	--	--		--	--	--		--	--	17.3 J	7 J	12.15	--
Potassium	7440-09-7			µg/L	--	--	--		--	--	--		--	--	--		--	--	9060	4240 J	6650	--
Selenium	7782-49-2	10	H(WS)	µg/L	--	--	--		--	--	--		--	--	--		--	--	**84.5**	**11.2**	47.85	--
Silver	7440-22-4	50	H(WS)	µg/L	--	--	--		--	--	--		--	--	--		--	--	0.94 U	--		--
Sodium	7440-23-5			µg/L	--	--	--		--	--	--		--	--	--		--	--	4E+05	352000	394500	--
Strontium	7440-24-6			µg/L	--	--	--		--	--	--		--	--	--		--	--	3.9 U	--		--
Thallium	7440-28-0	0.5	H(WS)	µg/L	--	--	--		--	--	--		--	--	--		--	--	--	--		--
Vanadium	7440-62-2			µg/L	--	--	--		--	--	--		--	--	--		--	--	61.7	8 J	34.85	--
Zinc	7440-66-6	2000	H(WS)	µg/L	--	--	--		--	--	--		--	--	--		--	--	21.2	339	180.1	--

B = The analyte was found in an associated blank, as well as in the sample.
J = The analyte was positively identified, the quantitation is an estimation.
U - The analyte was analyzed for, but not detected. The associated numerical value is the MDL.
* - Analytes also detected in Blank.
** - trans-1,2-Dichloroethene screening value used as a surrogate for 1,2-Dichloroethene (total).
*** - p-Xylene screening value used as a surrogate for Xylenes (total).
H(WS) - drinking water (groundwater)
E - aesthetic
Bold concentrations were detected above the NYSDEC criterion for that analyte
a) The highest result between samples 2AMW-7 and 2AMW-17 (dup of 2AMW-7) is reported.
b) The highest result between samples HP01 and HP04 (dup of HP01) is reported.
c) The highest result between samples MW-ACE3 and MW-ACE3 DUP is reported.
d) The highest result between samples MW-ACE2 and MW-ACE2 DUP is reported.

Table J.7.3a
Detected Chemicals in Groundwater and NYSDEC Screening Concentrations for Groundwater Quality
Former Schenectedy Army Depot - Voorheesville Area

				SAMPLE ID:	AMW-4	AMW-104	SD-GW01-AOC-7	SD-GW101-AOC-7	GW-01		SD-GW03-AOC-7	GW-03		GW-12	GW-13	GW-14	MW-2B	ACE-6	MW-ACE4
				SAMPLED:	6/14/2006	6/14/2006	21-Jul-04	21-Jul-04	6/16/2006		22-Jul-04	6/16/2006		6/14/2006	6/16/2006	6/16/2006	6/15/2006	29-Jun-00	23-Jul-96
				DEPTH ZONE:	Shallow	Unknown	Shallow	Shallow	Shallow		Shallow	Shallow		Shallow	Shallow	Shallow	Shallow	Shallow	Unknown
PARAMETER	**CAS NUMBER**	**NYSDEC Recommended Cleanup Objective (µg/L)**	**Basis of NYSDEC Cleanup Objective**	UNITS:			UPGRADIENT	Dup of SD-GW01-AOC-7		GW-01 EPC	DOWNGR ADIENT		GW-03 EPC						
VOLATILES																			
2-Butanone	78-93-3	50	H(WS)	µg/L	2 J	5 U			5 U			5 U		5 U	5 U	5 U	5 U	--	5 U
1,1-Dichloroethene	75-35-4	5	H(WS)	µg/L	--	--			--			--		--	--	--	--	--	5 U
1,2-Dichloroethane	107-06-2	0.6	H(WS)	µg/L	1 U	1 U			1 U			1 U		1 U	1 U	1 U	1 U	--	5 U
1,2-Dichloroethene (total)**	540-59-0			µg/L	1 U	1 U			1 U			1 U		1 U	1 U	1 U	1 U	ND	
cis-1,2-Dichloroethene	156-59-2	5	H(WS)	µg/L	--	--			--			--		--	--	--	--	--	5 U
trans-1,2-Dichloroethene	156-60-5	5	H(WS)	µg/L	--	--			--			--		--	--	--	--	--	5 U
Acetone	67-64-1	50	H(WS)	µg/L	--	--			--			--		--	--	--	--	--	5 U
Benzene	71-43-2	1	H(WS)	µg/L	0.28 J	0.81 J			1 U			1 U		1 U	1 U	1 U	1 U	--	5 U
Chlorobenzene	108-90-7	5	H(WS)	µg/L	--	--			--			--		--	--	--	--	--	5 U
Methylene chloride	75-09-2	5	H(WS)	µg/L	--	--			--			--		--	--	--	--	--	5 U
Toluene	108-88-3	5	H(WS)	µg/L	0.23 J	1 U			1 U			1 U		1 U	1 U	1 U	1 U	--	5 U
Trichloroethene	79-01-6	5	H(WS)	µg/L	1 U	0.32 J			1 U			1 U		1 U	1 U	1 U	1 U	ND	5 U
Vinyl chloride	75-01-4	2	H(WS)	µg/L	1 J	**3.4** J			1 U			1 U		1 U	1 U	1 U	1 U	ND	5 U
Xylenes (total)***	1330-20-7			µg/L	--	--			--			--		--	--	--	--	--	5 U
SEMIVOLATILES																			
bis(2-Ethylhexyl) phthalate	117-81-7	5	H(WS)	µg/L	--	--	**22** J	1.6 J	--	22	**7.6**	--	7.6	--	--	--	--	--	--
Butyl benzyl phthalate	85-68-7	50	H(WS)	µg/L	--	--	4.7 U	4.8 U	--		4.7 U	--		--	--	--	--	--	--
Carbazole	86-74-8			µg/L	--	--	4.7 U	4.8 U	--		4.7 U	--		--	--	--	--	--	--
Di-n-butyl phthalate	84-74-2	50	H(WS)	µg/L	--	--	4.7 U	4.8 U	--		4.7 U	--		--	--	--	--	--	--
Diethyl phthalate	84-66-2			µg/L	--	--	4.7 U	4.8 U	--		4.7 U	--		--	--	--	--	--	--
Fluoranthene	206-44-0	50	H(WS)	µg/L	--	--	4.7 U	4.8 U	--		4.7 U	--		--	--	--	--	--	--
Pyrene	129-00-0	50	H(WS)	µg/L	--	--	4.7 U	4.8 U	--		4.7 U	--		--	--	--	--	--	--
PESTICIDES / PCBs																			
alpha-BHC	319-84-6	0.01	H(WS)	µg/L	--	--			--			--		--	--	--	--	--	--
gamma-BHC (Lindane)	58-89-9	0.05	H(WS)	µg/L	--	--			--			--		--	--	--	--	--	--
4,4'-DDE	72-55-9	0.2	H(WS)	µg/L	--	--			--			--		--	--	--	--	--	--
4,4'-DDD	72-54-8	0.3	H(WS)	µg/L	--	--			--			--		--	--	--	--	--	--
4,4'-DDT	50-29-3	0.2	H(WS)	µg/L	--	--			--			--		--	--	--	--	--	--
Endrin	72-20-8			µg/L	--	--			--			--		--	--	--	--	--	--
Endrin Ketone	53494-70-5	5	H(WS)	µg/L	--	--			--			--		--	--	--	--	--	--
Endrin aldehyde	7421-93-4	5	H(WS)	µg/L	--	--			--			--		--	--	--	--	--	--
METALS																			
Aluminum	7429-90-5			µg/L	--	--	12.1 J	13.7 J	--	13.7	27.4 J	--	27.4	--	--	--	--	--	--
Antimony	7440-36-0	3	H(WS)	µg/L	--	--			--			--		--	--	--	--	--	--
Arsenic	7440-38-2	25	H(WS)	µg/L	--	--	3.3 U	3.3 U	--		3.3 U	--		--	--	--	--	--	10
Barium	7440-39-3	1000	H(WS)	µg/L	--	--	38.1 J	40.7 J	--	40.7	10.4 J	--	10.4	--	--	--	--	--	104
Beryllium	7440-41-7	3	H(WS)	µg/L	--	--	0.53 J	0.48 J	--	0.53	0.42 U	--		--	--	--	--	--	--
Cadmium	7440-43-9	5	H(WS)	µg/L	--	--			--			--		--	--	--	--	--	--
Calcium	7440-70-2			µg/L	--	--	184000	185000	--	185000	161000	--	161000	--	--	--	--	--	--
Chromium	7440-47-3	50	H(WS)	µg/L	--	--			--			--		--	--	--	--	--	22
Chromium VI	18540-29-9	50	H(WS)	µg/L	--	--			--			--		--	--	--	--	--	20 U
Cobalt	7440-48-4			µg/L	--	--			--			--		--	--	--	--	--	--
Copper	7440-50-8	200	H(WS)	µg/L	--	--	1.2 U	1.2 U	--		2 J	--	2	--	--	--	--	--	--
Iron	7439-89-6	300	E	µg/L	--	--	**2840**	**3100**	--	3100	18 U	--		--	--	--	--	--	--
Lead	7439-92-1	25	H(WS)	µg/L	--	--	1.6 U	1.6 U	--		1.6 U	--		--	--	--	--	--	6 U
Magnesium	7439-95-4	35000	H(WS)	µg/L	--	--	**128000**	**131000**	--	131000	29900	--	29900	--	--	--	--	--	--
Manganese	7439-96-5			µg/L	--	--	1480	1700	--	1700	59	--	59	--	--	--	--	--	--
Mercury	7439-97-6	0.7	H(WS)	µg/L	--	--			--			--		--	--	--	--	--	--
Nickel	7440-02-0	100	H(WS)	µg/L	--	--	1.2 U	1.2 U	--		1.2 U	--		--	--	--	--	--	--
Potassium	7440-09-7			µg/L	--	--	3820 J	4500 J	--	4500	296 J	--	296	--	--	--	--	--	--
Selenium	7782-49-2	10	H(WS)	µg/L	--	--			--			--		--	--	--	--	--	--
Silver	7440-22-4	50	H(WS)	µg/L	--	--	0.59 J	0.75 J	--	0.75	0.3 U	--		--	--	--	--	--	--
Sodium	7440-23-5			µg/L	--	--	37300	38900	--	38900	5510	--	5510	--	--	--	--	--	--
Strontium	7440-24-6			µg/L	--	--			--			--		--	--	--	--	--	--
Thallium	7440-28-0	0.5	H(WS)	µg/L	--	--			--			--		--	--	--	--	--	--
Vanadium	7440-62-2			µg/L	--	--	1 U	1 U	--		1.1 J	--	1.1	--	--	--	--	--	--
Zinc	7440-66-6	2000	H(WS)	µg/L	--	--	3.4 J	4 J	--	4	12.4 J	--	12.4	--	--	--	--	--	--

B = The analyte was found in an associated blank, as well as in the sample.
J = The analyte was positively identified, the quantitation is an estimation.
U - The analyte was analyzed for, but not detected. The associated numerical value is the MDL.
* - Analytes also detected in Blank.
** - trans-1,2-Dichloroethene screening value used as a surrogate for 1,2-Dichloroethene (total).
*** - p-Xylene screening value used as a surrogate for Xylenes (total).
H(WS) - drinking water (groundwater)
E - aesthetic
Bold concentrations were detected above the NYSDEC criterion for that analyte
a) The highest result between samples 2AMW-7 and 2AMW-17 (dup of 2AMW-7) is reported.
b) The highest result between samples HP01 and HP04 (dup of HP01) is reported.
c) The highest result between samples MW-ACE3 and MW-ACE3 DUP is reported.
d) The highest result between samples MW-ACE2 and MW-ACE2 DUP is reported.

Table J.7.3a
Detected Chemicals in Groundwater and NYSDEC Screening Concentrations for Groundwater Quality
Former Schenectedy Army Depot - Voorheesville Area

PARAMETER	CAS NUMBER	NYSDEC Recommended Cleanup Objective (µg/L)	Basis of NYSDEC Cleanup Objective	SAMPLE ID:	MW-ACE3 [c]	MW-2-2	MW-ACE5	MW-2BMW9	MW-2AMW6	MW-2AMW8	MW-2AMW3	MW-1	MW-2	MW-3	MW-4	AOC7-2AMW-7	AOC7-2AMW-7 [a]
				SAMPLED:	23-Jul-96	24-Jul-96	24-Jul-96	24-Jul-96	24-Jul-96	24-Jul-96	24-Jul-96	1988	1988	1988	1988	16-Aug-00	16-Aug-00
				DEPTH ZONE:	Shallow	Unknown	Unknown	Shallow	Shallow	Shallow	Unknown	Unknown	Unknown	Unknown	Unknown	Shallow	Shallow
				UNITS:													
VOLATILES																	
2-Butanone	78-93-3	50	H(WS)	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	--	--	--	--	R	R
1,1-Dichloroethene	75-35-4	5	H(WS)	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	--	--	--	--	1 U	1 U
1,2-Dichloroethane	107-06-2	0.6	H(WS)	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	--	--	--	--	1 U	1 U
1,2-Dichloroethene (total)**	540-59-0			µg/L	--	--	--	--	--	--	--	--	--	--	--	1 U	1 U
cis-1,2-Dichloroethene	156-59-2	5	H(WS)	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	--	--	--	--	1 U	1 U
trans-1,2-Dichloroethene	156-60-5	5	H(WS)	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	--	--	--	--	--	--
Acetone	67-64-1	50	H(WS)	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	--	--	--	--	10 U	10 U
Benzene	71-43-2	1	H(WS)	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	--	--	--	--	1 U	1 U
Chlorobenzene	108-90-7	5	H(WS)	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	--	--	--	--	1 U	1 U
Methylene chloride	75-09-2	5	H(WS)	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	--	--	--	--	2 U	2 U
Toluene	108-88-3	5	H(WS)	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	--	--	--	--	1 U	1 U
Trichloroethene	79-01-6	5	H(WS)	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	--	--	--	--	1 U	1 U
Vinyl chloride	75-01-4	2	H(WS)	µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	--	--	--	--	2 U	2 U
Xylenes (total)***	1330-20-7			µg/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	--	--	--	--	1 U	1 U
SEMIVOLATILES																	
bis(2-Ethylhexyl) phthalate	117-81-7	5	H(WS)	µg/L	--	--	--	--	--	--	--	--	--	--	--	**5.9** J	**27** J
Butyl benzyl phthalate	85-68-7	50	H(WS)	µg/L	--	--	--	--	--	--	--	--	--	--	--	10 U	10 U
Carbazole	86-74-8			µg/L	--	--	--	--	--	--	--	--	--	--	--	10 U	10 U
Di-n-butyl phthalate	84-74-2	50	H(WS)	µg/L	--	--	--	--	--	--	--	--	--	--	--	10 U	10 U
Diethyl phthalate	84-66-2			µg/L	--	--	--	--	--	--	--	--	--	--	--	10 U	10 U
Fluoranthene	206-44-0	50	H(WS)	µg/L	--	--	--	--	--	--	--	--	--	--	--	10 U	10 U
Pyrene	129-00-0	50	H(WS)	µg/L	--	--	--	--	--	--	--	--	--	--	--	10 U	10 U
PESTICIDES / PCBs																	
alpha-BHC	319-84-6	0.01	H(WS)	µg/L	--	--	--	--	--	--	--	--	--	--	--	0.05 U	0.05 U
gamma-BHC (Lindane)	58-89-9	0.05	H(WS)	µg/L	--	--	--	--	--	--	--	--	--	--	--	0.05 U	0.05 U
4,4'-DDE	72-55-9	0.2	H(WS)	µg/L	--	--	--	--	--	--	--	--	--	--	--	0.05 U	0.05 U
4,4'-DDD	72-54-8	0.3	H(WS)	µg/L	--	--	--	--	--	--	--	--	--	--	--	0.05 U	0.05 U
4,4'-DDT	50-29-3	0.2	H(WS)	µg/L	--	--	--	--	--	--	--	--	--	--	--	0.05 U	0.05 U
Endrin	72-20-8			µg/L	--	--	--	--	--	--	--	--	--	--	--	0.05 U	0.05 U
Endrin Ketone	53494-70-5	5	H(WS)	µg/L	--	--	--	--	--	--	--	--	--	--	--	0.05 U	0.05 U
Endrin aldehyde	7421-93-4	5	H(WS)	µg/L	--	--	--	--	--	--	--	--	--	--	--	0.05 U	0.05 U
METALS																	
Aluminum	7429-90-5			µg/L	--	--	--	--	--	--	--	--	--	--	--	3560	3560
Antimony	7440-36-0	3	H(WS)	µg/L	--	--	--	--	--	--	--	--	--	--	--	1.5 U	1.5 U
Arsenic	7440-38-2	25	H(WS)	µg/L	5	6	2 U	2 U	2 U	**82**	5	6.6	**31**	**28**	23	2.6 U	2.6 U
Barium	7440-39-3	1000	H(WS)	µg/L	42	79	13	28	14	51	107	82	356	187	232	33.8 J	33.8 J
Beryllium	7440-41-7	3	H(WS)	µg/L	--	--	--	--	--	--	--	--	--	--	--	0.12 J	0.12 J
Cadmium	7440-43-9	5	H(WS)	µg/L	--	--	--	--	--	--	--	--	--	--	--	0.49 U	0.49 U
Calcium	7440-70-2			µg/L	--	--	--	--	--	--	--	--	--	--	--	2E+05	238000
Chromium	7440-47-3	50	H(WS)	µg/L	17	18	4 U	4 U	4 U	**50**	34	19	**144**	**83**	**66**	4 J	4 J
Chromium VI	18540-29-9	50	H(WS)	µg/L	20 U	20 U	20 U	20 U	20 U	20 U	20 U	--	--	--	--	--	--
Cobalt	7440-48-4			µg/L	--	--	--	--	--	--	--	--	--	--	--	3.2 U	3.2 U
Copper	7440-50-8	200	H(WS)	µg/L	--	--	--	--	--	--	--	--	--	--	--	6.8 J	10.3 J
Iron	7439-89-6	300	E	µg/L	--	--	--	--	--	--	--	--	--	--	--	**3010**	**3010**
Lead	7439-92-1	25	H(WS)	µg/L	2 U	6 U	6 U	6 U	6 U	2 U	13	14	**90**	**66**	**69**	2 J	2 J
Magnesium	7439-95-4	35000	H(WS)	µg/L	--	--	--	--	--	--	--	--	--	--	--	**1E+05**	**111000**
Manganese	7439-96-5			µg/L	--	--	--	--	--	--	--	--	--	--	--	1980	2700
Mercury	7439-97-6	0.7	H(WS)	µg/L	--	--	--	--	--	--	--	--	--	--	--	0.045 U	0.045 U
Nickel	7440-02-0	100	H(WS)	µg/L	--	--	--	--	--	--	--	--	--	--	--	6.1 U	6.1 U
Potassium	7440-09-7			µg/L	--	--	--	--	--	--	--	--	--	--	--	2270 J	2270 J
Selenium	7782-49-2	10	H(WS)	µg/L	--	--	--	--	--	--	--	--	--	--	--	2.1 U	2.1 U
Silver	7440-22-4	50	H(WS)	µg/L	--	--	--	--	--	--	--	--	--	--	--	0.94 U	0.94 U
Sodium	7440-23-5			µg/L	--	--	--	--	--	--	--	--	--	--	--	15900	15900
Strontium	7440-24-6			µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--
Thallium	7440-28-0	0.5	H(WS)	µg/L	--	--	--	--	--	--	--	--	--	--	--	3.9 U	3.9 U
Vanadium	7440-62-2			µg/L	--	--	--	--	--	--	--	--	--	--	--	10.1 J	10.1 J
Zinc	7440-66-6	2000	H(WS)	µg/L	--	--	--	--	--	--	--	--	--	--	--	22.3	22.3

B = The analyte was found in an associated blank, as well as in the sample.
J = The analyte was positively identified, the quantitation is an estimation.
U - The analyte was analyzed for, but not detected. The associated numerical value is the MDL.
* - Analytes also detected in Blank.
** - trans-1,2-Dichloroethene screening value used as a surrogate for 1,2-Dichloroethene (total).
*** - p-Xylene screening value used as a surrogate for Xylenes (total).
H(WS) - drinking water (groundwater)
E - aesthetic
Bold concentrations were detected above the NYSDEC criterion for that analyte
a) The highest result between samples 2AMW-7 and 2AMW-17 (dup of 2AMW-7) is reported.
b) The highest result between samples HP01 and HP04 (dup of HP01) is reported.
c) The highest result between samples MW-ACE3 and MW-ACE3 DUP is reported.
d) The highest result between samples MW-ACE2 and MW-ACE2 DUP is reported.

Table J.7.3a
Detected Chemicals in Groundwater and NYSDEC Screening Concentrations for Groundwater Quality
Former Schenectedy Army Depot - Voorheesville Area

				SAMPLE ID:		AOC7-2AMW-5		AOC7-HP01 [b]		AOC7-HP04			AOC7-HP02		AOC7-HP03		SD-GW02-AOC-7		SD-2AMW5-AOC-1		SD-2AMW7-AOC-1		SD-GW13-AOC1	
				SAMPLED:		16-Aug-00		02-Aug-00		8/2/2000			31-Jul-00		31-Jul-00		22-Jul-04		21-Jul-04		21-Jul-04		07-Dec-04	
				DEPTH ZONE:		Shallow		Shallow		Shallow			Shallow		Shallow		Bedrock		Shallow		Shallow		Shallow	
PARAMETER	**CAS NUMBER**	**NYSDEC Recommended Cleanup Objective (µg/L)**	**Basis of NYSDEC Cleanup Objective**	UNITS:	2AMW-7 EPC							HP-01 EPC					DOWNGRADIENT		UPGRADIENT					
VOLATILES																								
2-Butanone	78-93-3	50	H(WS)	µg/L		R		R					ND		ND								--	
1,1-Dichloroethene	75-35-4	5	H(WS)	µg/L		1	U	1	U	1	U		1	U	1	U							--	
1,2-Dichloroethane	107-06-2	0.6	H(WS)	µg/L		1	U	1	U	1	U		1	U	1	U							--	
1,2-Dichloroethene (total)**	540-59-0			µg/L		1	U	1	U	1	U		1	U	1	U							--	
cis-1,2-Dichloroethene	156-59-2	5	H(WS)	µg/L		1	U	1	U	1	U		1	U	1	U							--	
trans-1,2-Dichloroethene	156-60-5	5	H(WS)	µg/L		--		--		--			--		--								--	
Acetone	67-64-1	50	H(WS)	µg/L		10	U	4.2	J	4.2	J	4.2	2.4	J	10	U							--	
Benzene	71-43-2	1	H(WS)	µg/L		1	U	1	U	1	U		1	U	1	U							--	
Chlorobenzene	108-90-7	5	H(WS)	µg/L		1	U	1	U	1	U		1	U	1	U							--	
Methylene chloride	75-09-2	5	H(WS)	µg/L		2	U	2	U	2	U		2	U	2	U							--	
Toluene	108-88-3	5	H(WS)	µg/L		1	U	1	U	1	U		1	U	1	U							1	U
Trichloroethene	79-01-6	5	H(WS)	µg/L		1	U	1	U	1	U		1	U	1	U							--	
Vinyl chloride	75-01-4	2	H(WS)	µg/L		2	U	2	U	2	U		2	U	2	U							--	
Xylenes (total)***	1330-20-7			µg/L		1	U	1	U	1	U		1	U	1	U							--	
SEMIVOLATILES																								
bis(2-Ethylhexyl) phthalate	117-81-7	5	H(WS)	µg/L	5.9	**15**		**69**		**8.5**	J	69	**100**		**13**		**16**		**27**		4.1	J	9.8	U
Butyl benzyl phthalate	85-68-7	50	H(WS)	µg/L		10	U	10	U	10	U		10	U	10	U	4.8	U	0.12	J	4.8	U	--	
Carbazole	86-74-8			µg/L		10	U	10	U	10	U		10	U	10	U	4.8	U	0.13	J	4.8	U	--	
Di-n-butyl phthalate	84-74-2	50	H(WS)	µg/L		10	U	10	U	10	U		10	U	10	U	4.8	U	0.28	J	4.8	U	1.1	J
Diethyl phthalate	84-66-2			µg/L		10	U	10	U	10	U		10	U	10	U	1.7	J	0.35	J	1.6	J	--	
Fluoranthene	206-44-0	50	H(WS)	µg/L		10	U	10	U	10	U		10	U	10	U	4.8	U	0.2	J	4.8	U	2.5	J
Pyrene	129-00-0	50	H(WS)	µg/L		10	U	10	U	10	U		10	U	10	U	4.8	U	0.17	J	4.8	U	0.95	J
PESTICIDES / PCBs																								
alpha-BHC	319-84-6	0.01	H(WS)	µg/L		0.05	U	0.05	U	0.05	U		0.05	U	0.05	U							0.002	J
gamma-BHC (Lindane)	58-89-9	0.05	H(WS)	µg/L		0.05	U	0.05	U	0.05	U		0.05	U	0.05	U							0.002	JN
4,4'-DDE	72-55-9	0.2	H(WS)	µg/L		0.05	U	0.05	U	0.05	U		0.05	U	0.023	J							--	
4,4'-DDD	72-54-8	0.3	H(WS)	µg/L		0.05	U	0.05	U	0.05	U		0.05	U	0.035	JN							0.027	J
4,4'-DDT	50-29-3	0.2	H(WS)	µg/L		0.05	U	0.05	U	0.05	U		0.05	U	0.087								0.014	JN
Endrin	72-20-8			µg/L		0.05	U	0.05	U	0.05	U		0.05	U	0.05	U							0.008	JN
Endrin Ketone	53494-70-5	5	H(WS)	µg/L		0.05	U	0.05	U	0.05	U		0.05	U	0.05	U							0.003	J
Endrin aldehyde	7421-93-4	5	H(WS)	µg/L		0.05	U	0.05	U	0.05	U		0.05	U	0.05	U							0.002	JN
METALS																								
Aluminum	7429-90-5			µg/L	3560	1600		5940		5310		5940	389000		19600		59.9	J	79.4	J	29.5	J	8	U
Antimony	7440-36-0	3	H(WS)	µg/L		1.5	U	1.5	U	1.5	U		1.5	U	1.5	U							3.2	U
Arsenic	7440-38-2	25	H(WS)	µg/L		14.7		4.8	J	2.7	J	4.8	**207**		10.2		3.3	U	11.6		3.3	U	3.3	U
Barium	7440-39-3	1000	H(WS)	µg/L	33.8	44.6	J	85	J	72.3	J	85	1990		187	J	197	J	41.6	J	16.3	J	36.5	J
Beryllium	7440-41-7	3	H(WS)	µg/L	0.12	0.071	U	0.41	J	0.41	J	0.41	**20.7**		1.2	J	0.42	U	0.42	U	0.42	U	0.71	J
Cadmium	7440-43-9	5	H(WS)	µg/L		0.49	U	0.49	U	0.49	U		**9.1**	J	0.49	U							--	
Calcium	7440-70-2			µg/L	2E+05	250000		255000		255000		255000	694000		147000		97600		226000		3E+05		4E+05	
Chromium	7440-47-3	50	H(WS)	µg/L	4	1.8	J	11.9		11.2		11.9	**544**		31.1								7	
Chromium VI	18540-29-9	50	H(WS)	µg/L		--		--		--			--		--								--	
Cobalt	7440-48-4			µg/L		3.2	U	3.8	J	3.2	U		423		15	J							0.53	U
Copper	7440-50-8	200	H(WS)	µg/L	6.8	63.3	U	13.8	J	13.3	J	13.8	**989**		37.7		1.2	U	4.6	J	1.2	U	1.2	J
Iron	7439-89-6	300	E	µg/L	3010	**3880**		**9920**		**8910**		9920	**912000**		**31200**		**5360**		**2540**		18	U	18	U
Lead	7439-92-1	25	H(WS)	µg/L	2	5.2		4.9		4.9		4.9	**388**		12.1		1.6	U	1.6	J	1.6	U	1.6	U
Magnesium	7439-95-4	35000	H(WS)	µg/L	1E+05	**49500**		**106000**		**96200**		**106000**	**313000**		**40000**		15100		**47000**		**2E+05**		**2E+05**	
Manganese	7439-96-5			µg/L	1980	124		461		422		461	16200		989		456		810		135		90.2	
Mercury	7439-97-6	0.7	H(WS)	µg/L		0.045	U	0.069	J	0.06	J	0.069	**0.97**		0.067	J							--	
Nickel	7440-02-0	100	H(WS)	µg/L		6.1	U	12.4	J	8.1	J	12.4	**857**		46.5		1.2	U	2	J	1.2	U	2.4	J
Potassium	7440-09-7			µg/L	2270	7460		46800		32000		46800	73700		17100		1140	J	5740		1090	J	47800	
Selenium	7782-49-2	10	H(WS)	µg/L		2.3	J	2.1	U	2.1	U		2.1	U	2.1	U							8.4	J
Silver	7440-22-4	50	H(WS)	µg/L		0.94	U	0.94	U	0.94	U		4.1	J	0.94	U	0.3	U	0.3	U	0.3	U	--	
Sodium	7440-23-5			µg/L	15900	8780		143000		134000		143000	74700		14300		19200		9730		24100		74600	
Strontium	7440-24-6			µg/L		--		--		--			--		--								--	
Thallium	7440-28-0	0.5	H(WS)	µg/L		3.9	U	3.9	U	3.9	U		**7.8**		3.9	U							--	
Vanadium	7440-62-2			µg/L	10.1	4.4	J	15.8	J	15.6	J	15.8	704		41.5	J	1	U	5.4	J	7.6	J	4.9	J
Zinc	7440-66-6	2000	H(WS)	µg/L	22.3	17.5	J	56.9		46.8		56.9	**2090**		109		2.1	J	11.6	J	6.6	J	30.6	

B = The analyte was found in an associated blank, as well as in the sample.
J = The analyte was positively identified, the quantitation is an estimation.
U - The analyte was analyzed for, but not detected. The associated numerical value is the MDL.
* - Analytes also detected in Blank.
** - trans-1,2-Dichloroethene screening value used as a surrogate for 1,2-Dichloroethene (total).
*** - p-Xylene screening value used as a surrogate for Xylenes (total).
H(WS) - drinking water (groundwater)
E - aesthetic
Bold concentrations were detected above the NYSDEC criterion for that analyte
a) The highest result between samples 2AMW-7 and 2AMW-17 (dup of 2AMW-7) is reported.
b) The highest result between samples HP01 and HP04 (dup of HP01) is reported.
c) The highest result between samples MW-ACE3 and MW-ACE3 DUP is reported.
d) The highest result between samples MW-ACE2 and MW-ACE2 DUP is reported.

Table J.7.3b
Detected Chemicals in Groundwater and NYSDEC Screening Concentrations for Groundwater Quality
Former Schenectedy Army Depot - Voorheesville Area

Resdential Wells AOC 1/7

PARAMETER	CAS NUMBER	NYSDEC Recommended Cleanup Objective (µg/L)	Basis of NYSDEC Cleanup Objective	SAMPLE ID:	E4800	E4801	E4802	E4803	E4804	E4806	E4807	E4808	E4809	E4810	E4811	E4812	E4813	E4880	E4794	E4795	E4796	E5306	E4797
				SAMPLED:	27-Aug-90	27-Aug-90	27-Aug-90	27-Aug-90	27-Aug-90	27-Aug-90	27-Aug-90	27-Aug-90	27-Aug-90	27-Aug-90	27-Aug-90	27-Aug-90	27-Aug-90	27-Aug-90	27-Aug-90	27-Aug-90	27-Aug-90	27-Aug-90	27-Aug-90
				DEPTH ZONE:	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
				UNITS:																			
VOLATILES																							
2-Butanone	78-93-3			µg/L	--	--	--	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethene	75-35-4			µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane	107-06-2			µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethene (total)**	540-59-0			µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
cis-1,2-Dichloroethene	156-59-2			µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
trans-1,2-Dichloroethene	156-60-5			µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acetone	67-64-1	N/A		µg/L	29 *	21 *	20 *	--	--	--	--	--	--	--	22 *	--	15 *	--	21 *	57 *	42 *	--	22 *
Benzene	71-43-2			µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chlorobenzene	108-90-7			µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methylene chloride	75-09-2	5	H(WS)	µg/L	2.4 *	4.8 *	1.9 *	--	2.6 *	1.6 *	1.2 *	2.3 *	1.1 *	3.4 *	2.1 *	1.1 *	2.6 *	--	1.6 *	1.4 *	2.4 *	1.2 *	2.8 *
Toluene	108-88-3			µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trichloroethene	79-01-6			µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl chloride	75-01-4			µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Xylenes (total)***	1330-20-7			µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SEMIVOLATILES																							
bis(2-Ethylhexyl) phthalate	117-81-7			µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Butyl benzyl phthalate	85-68-7			µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbazole	86-74-8			µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Di-n-butyl phthalate	84-74-2			µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Diethyl phthalate	84-66-2			µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fluoranthene	206-44-0			µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pyrene	129-00-0			µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PESTICIDES / PCBs																							
alpha-BHC	319-84-6			µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
gamma-BHC (Lindane)	58-89-9			µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4,4'-DDE	72-55-9			µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4,4'-DDD	72-54-8			µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4,4'-DDT	50-29-3			µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endrin	72-20-8			µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endrin Ketone	53494-70-5			µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Endrin aldehyde	7421-93-4			µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
METALS																							
Aluminum	7429-90-5			µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony	7440-36-0			µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	7440-38-2	25	H(WS)	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7.9	--
Barium	7440-39-3	1000	H(WS)	µg/L	--	--	--	319	--	--	--	--	--	--	--	--	--	63	--	--	--	--	73
Beryllium	7440-41-7			µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	7440-43-9			µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Calcium	7440-70-2			µg/L	--	--	--	1.7	--	--	--	--	--	--	--	--	--	94	--	--	--	--	--
Chromium	7440-47-3	50	H(WS)	µg/L	--	10	10	44	30	--	20	--	--	20	10	--	50	10	30	20	**90**	30	--
Chromium VI	18540-29-9			µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt	7440-48-4			µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Copper	7440-50-8	200	H(WS)	µg/L	--	--	--	55	--	--	--	--	--	--	--	--	--	29	--	--	--	--	107
Iron	7439-89-6	300	E	µg/L	--	--	--	6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	7439-92-1	25	H(WS)	µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	**49**	--	--	--	--	--
Magnesium	7439-95-4			µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	797	--	--	--	--	--
Manganese	7439-96-5			µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	7439-97-6			µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	7440-02-0	100	H(WS)	µg/L	--	--	--	3.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium	7440-09-7	N/A		µg/L	--	--	--	397	--	--	--	--	--	--	--	--	--	29.6	--	--	--	--	2.2
Selenium	7782-49-2			µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	7440-22-4			µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sodium	7440-23-5	N/A		µg/L	--	--	--	456	--	--	--	--	--	--	--	--	--	--	--	--	--	--	338
Strontium	7440-24-6			µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	23	--	--	--	--	269
Thallium	7440-28-0			µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	7440-62-2			µg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	7440-66-6	N/A		µg/L	10	20	20	--	30	30	30	20	10	20	20	20	140	--	30	47	80	10	--

J = The analyte was positively identified, the quantitation is an estimation.
U - The analyte was analyzed for, but not detected. The associated numerical value is the MDL.
B = The analyte was found in an associated blank, as well as in the sample.
* - Analytes also detected in Blank.
** - trans-1,2-Dichloroethene screening value used as a surrogate for 1,2-Dichloroethene (total).
*** - p-Xylene screening value used as a surrogate for Xylenes (total).
a) The highest result between samples 2AMW-7 and 2AMW-17 (dup of 2AMW-7) is reported.
b) The highest result between samples HP01 and HP04 (dup of HP01) is reported.
c) The highest result between samples MW-ACE3 and MW-ACE3 DUP is reported.
d) The highest result between samples MW-ACE2 and MW-ACE2 DUP is reported.
Bold concentrations were detected above the NYSDEC criterion for that analyte
H(WS) - drinking water (groundwater)
E - aesthetic

Table J.7.4
Detected Chemicals in Sediment
SADVA - AOCs 1 and 7

PARAMETER	CAS NUMBER	SAMPLE ID:		SD-SD08-0-0.2-AOC-1	SD-SD08-0.5-0.75-AOC-1	SD-SD09-0-0.2-AOC-1	SD-SD09-0.5-0.8-AOC-1	SD-SD10-0-0.2-AOC-1 [a]	SD-SD10-0.5-0.75-AOC-1	SD-SD11-0-0.2-AOC-1
		DEPTH:		0-0.2	0.5-0.75	0-0.2	0.5-0.8	0-0.2	0.5-0.75	0-0.2
		SAMPLED:		7/19/2004	7/19/2004	7/19/2004	7/19/2004	7/19/2004	7/19/2004	7/19/2004
		UNITS:	MAX VALUE							
VOLATILES										
Acetone	67-64-1	μg/kg	7.5	--	--	--	--	--	--	--
SEMIVOLATILES										
Acenaphthene	83-32-9	μg/kg	700	--	--	--	--	--	--	--
Anthracene	120-12-7	μg/kg	1500	--	--	--	--	--	--	--
Benzo(a)anthracene	56-55-3	μg/kg	2400	--	--	--	--	--	--	--
Benzo(a)pyrene	50-32-8	μg/kg	2200	--	--	--	--	--	--	--
Benzo(b)fluoranthene	205-99-2	μg/kg	1900	--	--	--	--	--	--	--
Benzo(ghi)perylene	191-24-2	μg/kg	570	--	--	--	--	--	--	--
Benzo(k)fluoranthene	207-08-9	μg/kg	2300	--	--	--	--	--	--	--
bis(2-Ethylhexyl) phthalate	117-81-7	μg/kg	390	--	--	--	--	--	--	--
Carbazole	86-74-8	μg/kg	740	--	--	--	--	--	--	--
Chrysene	218-01-9	μg/kg	2400	--	--	--	--	--	--	--
Dibenzofuran	132-64-9	μg/kg	310	--	--	--	--	--	--	--
Di-n-butyl phthalate	84-74-2	μg/kg	350	8700 UJ	360 U	220 J	39 J	6100 UJ	37 J	350 J
Dibenz(a,h)anthracene	53-70-3	μg/kg	280	--	--	--	--	--	--	--
Fluoranthene	206-44-0	μg/kg	5400	1600 J	360 U	2200 UJ	390 U	6100 UJ	390 U	2800 UJ
Fluorene	86-73-7	μg/kg	650	--	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	193-39-5	μg/kg	650	--	--	--	--	--	--	--
2-Methylnaphthalene	91-57-6	μg/kg	230	--	--	--	--	--	--	--
Naphthalene	91-20-3	μg/kg	300	--	--	--	--	--	--	--
Phenanthrene	85-01-8	μg/kg	5800	900 J	360 U	2200 UJ	390 U	6100 UJ	390 U	2800 UJ
Pyrene	129-00-0	μg/kg	3600	1300 J	360 U	2200 UJ	390 U	6100 UJ	390 U	2800 UJ
PESTICIDES/PCBS										
beta-BHC	319-85-7	μg/kg	4.5	11 UJ	1.9 U	5.6 UJ	2 U	4.5 JN	2 U	7.2 UJ
delta-BHC	319-86-8	μg/kg	3.2	11 UJ	1.9 UJ	5.6 UJ	2 UJ	7.8 UJ	2 UJ	7.2 UJ
gamma-BHC (Lindane)	58-89-9	μg/kg	1.5	11 UJ	1.9 U	5.6 UJ	2 U	7.8 UJ	2 U	7.2 UJ
Endosulfan I	959-98-8	μg/kg	3.6	3.6 J	1.9 U	0.78 JN	0.2 J	0.88 JN	2 U	7.2 UJ
Endrin	72-20-8	μg/kg	0.23	11 UJ	1.9 U	5.6 UJ	0.23 JN	7.8 UJ	2 U	7.2 UJ
Endosulfan II	33213-65-9	μg/kg	0.31	11 UJ	1.9 U	5.6 UJ	2 U	7.8 UJ	0.31 JN	7.2 UJ
4,4'-DDE	72-55-9	μg/kg	540	60 J	0.68 JN	46 J	1.8 JN	35 JN	1.5 J	9.9 JN
4,4'-DDD	72-54-8	μg/kg	2400	63 J	2 J	21 J	2.3	22 J	1.7 J	8.4 J
4,4'-DDT	50-29-3	μg/kg	630	11 UJ	1.9 U	28 J	1.4 J	33 J	2 U	7.6 J
alpha-Chlordane	5103-71-9	μg/kg	1.1	11 UJ	1.9 U	5.6 UJ	2 U	1.1 JN	2 U	7.2 UJ
Aroclor 1254	11097-69-1	μg/kg	290	--	--	--	--	--	--	--
METALS										
Aluminum	7429-90-5	mg/kg	16400	9940 J	11100	5830 J	11100	7100 J	10000	8070 J
Antimony	7440-36-0	mg/kg	7.9	2.2 J	0.35 U	1.4 J	0.38 U	2.8 J	0.38 U	1.7 J
Arsenic	7440-38-2	mg/kg	9.5	5.1 J	5.4	3.1 J	5.9	4.3 J	4.9	3.4 J
Barium	7440-39-3	mg/kg	258	125 J	56.7	84.8 J	57.9	112 J	47	106 J
Beryllium	7440-41-7	mg/kg	7.6	1.4 J	0.78	0.67 J	0.83	0.93 J	0.71	0.93 J
Cadmium	7440-43-9	mg/kg	1.2	0.91 J	0.23 J	0.44 J	0.26 J	0.74 J	0.26 J	0.52 J
Calcium	7440-70-2	mg/kg		139000 J	14600	112000 J	16100	156000 J	16100	134000 J
Chromium	7440-47-3	mg/kg	359	23.6 J	15.4	11.8 J	16	17 J	14.4	15.2 J
Cobalt	7440-48-4	mg/kg	47.4	12.7 J	9.4	6.7 J	10.8	8.7 J	9.2	9.2 J
Copper	7440-50-8	mg/kg	491	123 J	26.3	46 J	32	75.3 J	28.3	47.7 J
Iron	7439-89-6	mg/kg		26900 J	23400	14700 J	26200	18800 J	22800	20300 J
Lead	7439-92-1	mg/kg	2440	109 J	9	36.1 J	12.1	65.5 J	11.9	40.8 J
Magnesium	7439-95-4	mg/kg		7230 J	6830	5220 J	6750	6460 J	6470	6900 J
Manganese	7439-96-5	mg/kg	4800	978 J	438	981 J	542	1120 J	541	1530 J
Mercury	7439-97-6	mg/kg	0.11	0.078 UJ	0.023 J	0.039 UJ	0.018 J	0.054 UJ	0.029 J	0.05 UJ
Nickel	7440-02-0	mg/kg	124	42.1 J	21.6	23.8 J	25.8	30.3 J	21.4	27.5 J
Potassium	7440-09-7	mg/kg		1880 J	1440	989 J	1350	1340 J	1180	1370 J
Selenium	7782-49-2	mg/kg	1.5	--	--	--	--	--	--	--
Silver	7440-22-4	mg/kg	0.66	0.44 J	0.098 J	0.3 J	0.091 J	0.39 J	0.12 J	0.43 J
Sodium	7440-23-5	mg/kg		1470 J	144 J	628 J	149 J	890 J	139 J	813 J
Thallium	7440-28-0	mg/kg	0.58	--	--	--	--	--	--	--
Vanadium	7440-62-2	mg/kg	97	81.4 J	21.8	45.6 J	21.6	61.2 J	19.8	53.3 J
Zinc	7440-66-6	mg/kg	2960	378 J	54.2	152 J	69.4	256 J	68.7	178 J

A - Concentration exceeds Lowest Effort Level (NYSDEC Technical Guidance for Screening Contaminated Sediments, 1993).

U = Analyte not detected; the number is the analytical reporting limit.

J = Estimated Value

UJ = Analyte not detected: the number is the estimated analytical reporting limit.

ND = Not Detected

a) The highest result between samples SD-SD10-0-0.2-AOC-1 and SD-SD110-0-0.2-AOC-1 (duplicate) is reported.

b) The highest result between samples R35SL-002-011 and R35SL-002-011 (duplicate) is reported.

Table J.7.4
Detected Chemicals in Sediment
SADVA - AOCs 1 and 7

PARAMETER	CAS NUMBER	SAMPLE ID:	SD-SD11-0.5-0.75-AOC-1	SD-SD12-0-0.2-AOC-1	SD-SD12-0.5-0.75-AOC-1	AOC1-SD04	AOC1-SD05	AOC1-SD06	AOC1-SD07	AOC1-SD08
		DEPTH:	0.5-0.75	0-0.2	0.5-0.75	0.2'	0.2'	0.2'	0.2'	0.2'
		SAMPLED:	7/19/2004	7/20/2004	7/19/2004	7/13/2000	7/13/2000	7/13/2000	7/13/2000	7/13/2000
		UNITS:								
VOLATILES										
Acetone	67-64-1	µg/kg	--	--	--	7.5	30 U	89 UJ	5.1	6.6
SEMIVOLATILES										
Acenaphthene	83-32-9	µg/kg	--	--	--	700	490 U	1500 UJ	570 U	660
Anthracene	120-12-7	µg/kg	--	--	--	1200	490 U	1500 UJ	570 U	1500
Benzo(a)anthracene	56-55-3	µg/kg	--	--	--	2400	17	94	570 U	2400
Benzo(a)pyrene	50-32-8	µg/kg	--	--	--	2200	18	110	570 U	2100
Benzo(b)fluoranthene	205-99-2	µg/kg	--	--	--	1900	19	160	570 U	1900
Benzo(ghi)perylene	191-24-2	µg/kg	--	--	--	570	490 U	1500 UJ	570 U	500
Benzo(k)fluoranthene	207-08-9	µg/kg	--	--	--	2300	22	130	570 U	2300
bis(2-Ethylhexyl) phthalate	117-81-7	µg/kg	--	--	--	390	15	100	25	290
Carbazole	86-74-8	µg/kg	--	--	--	740	490 U	1500 UJ	570 U	690
Chrysene	218-01-9	µg/kg	--	--	--	2400	23	140	570 U	2300
Dibenzofuran	132-64-9	µg/kg	--	--	--	300	490 U	1500 UJ	570 U	310
Di-n-butyl phthalate	84-74-2	µg/kg	49 J	11000 UJ	59 J	580 U	490 U	1500 UJ	570 U	630 U
Dibenz(a,h)anthracene	53-70-3	µg/kg	--	--	--	280	490 U	1500 UJ	570 U	260
Fluoranthene	206-44-0	µg/kg	390 U	11000 UJ	46 J	4700	490 U	300	570 U	5400
Fluorene	86-73-7	µg/kg	--	--	--	590	490 U	1500 UJ	570 U	650
Indeno(1,2,3-cd)pyrene	193-39-5	µg/kg	--	--	--	650	490 U	1500 UJ	570 U	580
2-Methylnaphthalene	91-57-6	µg/kg	--	--	--	130	490 U	230	570 U	90
Naphthalene	91-20-3	µg/kg	--	--	--	300	490 U	190	570 U	150
Phenanthrene	85-01-8	µg/kg	390 U	11000 UJ	390 U	5200	490 U	160	570 U	5800
Pyrene	129-00-0	µg/kg	390 U	11000 UJ	390 U	3500	24	180	570 U	3600
PESTICIDES/PCBS										
beta-BHC	319-85-7	µg/kg	2 U	14 UJ	2 U	30 U	2.5 U	150 UJ	2.9 U	33 U
delta-BHC	319-86-8	µg/kg	2 UJ	3.2 JN	2 UJ	30 U	2.5 U	150 UJ	2.9 U	33 U
gamma-BHC (Lindane)	58-89-9	µg/kg	2 U	1.5 JN	2 U	30 U	2.5 U	150 UJ	2.9 U	33 U
Endosulfan I	959-98-8	µg/kg	2 U	14 UJ	2 U	30 U	2.5 U	150 UJ	2.9 U	33 U
Endrin	72-20-8	µg/kg	2 U	14 UJ	2 U	30 U	2.5 U	150 UJ	2.9 U	33 U
Endosulfan II	33213-65-9	µg/kg	2 U	14 UJ	2 U	30 U	2.5 U	150 UJ	2.9 U	33 U
4,4'-DDE	72-55-9	µg/kg	3.2	34 JN	12	21	0.22	540	18	32
4,4'-DDD	72-54-8	µg/kg	3.1	29 J	22	42	2.5 U	2400	2	54
4,4'-DDT	50-29-3	µg/kg	0.96 JN	14 UJ	2 U	130	2.5 U	630	1.3	110
alpha-Chlordane	5103-71-9	µg/kg	2 U	14 UJ	2 U	30 U	2.5 U	150 UJ	2.9 U	33 U
Aroclor 1254	11097-69-1	µg/kg	--	--	--	69	2.5 U	150 UJ	57 U	290
METALS										
Aluminum	7429-90-5	mg/kg	6940	9650 J	11400	15300	16400	9440	12600	12600
Antimony	7440-36-0	mg/kg	0.37 U	2.6 UJ	0.38 U	7.9	0.22 UJ	2.1	0.25 UJ	6.8
Arsenic	7440-38-2	mg/kg	6	4.6 J	6.6	9.5	2.5	9.1	7.6	7
Barium	7440-39-3	mg/kg	90.7	87.5 J	63	205	128	71.6	258	216
Beryllium	7440-41-7	mg/kg	0.7	1.4 J	0.88	7.6	0.89	3.2	0.81	7
Cadmium	7440-43-9	mg/kg	0.34 J	0.87 J	0.34 J	1.2	0.55	1.1	1.1	0.96
Calcium	7440-70-2	mg/kg	53300	54900 J	22600	29900	5070	4850	2230	20200
Chromium	7440-47-3	mg/kg	11.1	17.3 J	17	359	15.3	60.3	16.9	193
Cobalt	7440-48-4	mg/kg	7.8	10.7 J	12.5	47.4	6.2	12.7	22.3	38.5
Copper	7440-50-8	mg/kg	29.3	53.7 J	33.2	478	17.2	298	24.1	491
Iron	7439-89-6	mg/kg	19800	25300 J	26700	86800	15200	22900	31200	54800
Lead	7439-92-1	mg/kg	10.8	43.2 J	14.2	2440	23.1	442	16.3	1300
Magnesium	7439-95-4	mg/kg	6160	5880 J	7650	6080	3240	4300	3940	3500
Manganese	7439-96-5	mg/kg	654	573 J	802	918	98	209	4800	553
Mercury	7439-97-6	mg/kg	0.018 J	0.097 UJ	0.019 J	0.038	0.083	0.11	0.029	0.036
Nickel	7440-02-0	mg/kg	18	31.6 J	27.8	124	17.4	47.5	25.1	114
Potassium	7440-09-7	mg/kg	968	1600 J	1500	1330	1150	1440	956	1230
Selenium	7782-49-2	mg/kg	--	--	--	0.37 U	0.65	1.5	1.8 U	0.4 U
Silver	7440-22-4	mg/kg	0.15 J	0.48 J	0.14 J	0.49	0.14 U	0.66	0.47	0.42
Sodium	7440-23-5	mg/kg	149 J	1410 J	171 J	630	108	680	84.5	677
Thallium	7440-28-0	mg/kg	--	--	--	0.68 U	0.58	1.7 UJ	3.3 U	0.74 U
Vanadium	7440-62-2	mg/kg	15.7	57.5 J	23.1	97	22.8	49.4	25.6	89.9
Zinc	7440-66-6	mg/kg	61.6	170 J	78.1	2960	76.5	979	87.1	2630

A - Concentration exceeds Lowest Effort Level (NYSDEC Technical Guidance for Screening Contaminated Sediments, 1993).

U = Analyte not detected; the number is the analytical reporting limit.

J = Estimated Value

UJ = Analyte not detected: the number is the estimated analytical reporting limit.

ND = Not Detected

a) The highest result between samples SD-SD10-0-0.2-AOC-1 and SD-SD110-0-0.2-AOC-1 (duplicate) is reported.

b) The highest result between samples R35SL-002-011 and R35SL-002-011 (duplicate) is reported.

Table J.7.4
Detected Chemicals in Sediment
SADVA - AOCs 1 and 7

PARAMETER	CAS NUMBER	SAMPLE ID: / DEPTH: / SAMPLED: / UNITS:	SED-1	SED-2	SED-3	SED-4	R35SL-001-001	R35SL-002-001 [a]
		SAMPLED:	1990	1990	1990	1990	11/14/90	11/14/90
VOLATILES								
Acetone	67-64-1	μg/kg	--	--	--	--	--	--
SEMIVOLATILES								
Acenaphthene	83-32-9	μg/kg	--	--	--	--	--	--
Anthracene	120-12-7	μg/kg	--	--	--	--	--	--
Benzo(a)anthracene	56-55-3	μg/kg	--	--	--	--	0.161 U	0.108
Benzo(a)pyrene	50-32-8	μg/kg	--	--	--	--	0.241 U	0.108 J
Benzo(b)fluoranthene	205-99-2	μg/kg	--	--	--	--	0.193 U	0.161
Benzo(ghi)perylene	191-24-2	μg/kg	--	--	--	--	0.804 U	1.048
Benzo(k)fluoranthene	207-08-9	μg/kg	--	--	--	--	0.193 U	0.056 J
bis(2-Ethylhexyl) phthalate	117-81-7	μg/kg	--	--	--	--	--	--
Carbazole	86-74-8	μg/kg	--	--	--	--	--	--
Chrysene	218-01-9	μg/kg	--	--	--	--	--	--
Dibenzofuran	132-64-9	μg/kg	--	--	--	--	--	--
Di-n-butyl phthalate	84-74-2	μg/kg	--	--	--	--	--	--
Dibenz(a,h)anthracene	53-70-3	μg/kg	--	--	--	--	--	--
Fluoranthene	206-44-0	μg/kg	--	--	--	--	2.412 U	0.507 J
Fluorene	86-73-7	μg/kg	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	193-39-5	μg/kg	--	--	--	--	--	--
2-Methylnaphthalene	91-57-6	μg/kg	--	--	--	--	--	--
Naphthalene	91-20-3	μg/kg	--	--	--	--	--	--
Phenanthrene	85-01-8	μg/kg	--	--	--	--	6.431 U	0.6 J
Pyrene	129-00-0	μg/kg	--	--	--	--	--	--
PESTICIDES/PCBS								
beta-BHC	319-85-7	μg/kg	--	--	--	--	--	--
delta-BHC	319-86-8	μg/kg	--	--	--	--	--	--
gamma-BHC (Lindane)	58-89-9	μg/kg	--	--	--	--	--	--
Endosulfan I	959-98-8	μg/kg	--	--	--	--	--	--
Endrin	72-20-8	μg/kg	--	--	--	--	--	--
Endosulfan II	33213-65-9	μg/kg	--	--	--	--	--	--
4,4'-DDE	72-55-9	μg/kg	ND	ND	24	ND	--	--
4,4'-DDD	72-54-8	μg/kg	ND	ND	120	ND	--	--
4,4'-DDT	50-29-3	μg/kg	ND	ND	20	ND	--	--
alpha-Chlordane	5103-71-9	μg/kg	--	--	--	--	--	--
Aroclor 1254	11097-69-1	μg/kg	--	--	--	--	--	--
METALS								
Aluminum	7429-90-5	mg/kg	--	--	--	--	--	--
Antimony	7440-36-0	mg/kg	--	--	--	--	--	--
Arsenic	7440-38-2	mg/kg	8.55	ND	2.51	ND	--	--
Barium	7440-39-3	mg/kg	--	--	--	--	71.4	45.0
Beryllium	7440-41-7	mg/kg	0.65	0.3	0.35	0.4	--	--
Cadmium	7440-43-9	mg/kg	0.15	0.1	0.53	0.3	--	--
Calcium	7440-70-2	mg/kg	--	--	--	--	--	--
Chromium	7440-47-3	mg/kg	13	4.7	11.8	7.98	9.8	7.9
Cobalt	7440-48-4	mg/kg	--	--	--	--	--	--
Copper	7440-50-8	mg/kg	17.4	14.3	22.6	29.3	--	--
Iron	7439-89-6	mg/kg	--	--	--	--	--	--
Lead	7439-92-1	mg/kg	6.1	3.7	28.6	20.9	6 U	9.7
Magnesium	7439-95-4	mg/kg	--	--	--	--	--	--
Manganese	7439-96-5	mg/kg	--	--	--	--	--	--
Mercury	7439-97-6	mg/kg	--	--	--	--	0.1 U	0.1 U
Nickel	7440-02-0	mg/kg	19	1	29	15	--	--
Potassium	7440-09-7	mg/kg	--	--	--	--	--	--
Selenium	7782-49-2	mg/kg	--	--	--	--	--	--
Silver	7440-22-4	mg/kg	--	--	--	--	--	--
Sodium	7440-23-5	mg/kg	--	--	--	--	--	--
Thallium	7440-28-0	mg/kg	--	--	--	--	--	--
Vanadium	7440-62-2	mg/kg	--	--	--	--	--	--
Zinc	7440-66-6	mg/kg	58	31	80	94	--	--

A - Concentration exceeds Lowest Effort Level (NYSDEC Technical Guidance for Screening Contaminated Sediments, 1993).

U = Analyte not detected; the number is the analytical reporting limit.

J = Estimated Value

UJ = Analyte not detected: the number is the estimated analytical reporting limit.

ND = Not Detected

a) The highest result between samples SD-SD10-0-0.2-AOC-1 and SD-SD110-0-0.2-AOC-1 (duplicate) is reported.

b) The highest result between samples R35SL-002-011 and R35SL-002-011 (duplicate) is reported.

Table J.7.5
Detected Chemicals in Surface Water
SADVA - AOCs 1 and 7

PARAMETER	CAS NUMBER	SAMPLE ID: / SAMPLED: / UNITS:	MAX VALUE	AOC1-SW04 13-Jul-00	AOC1-SW06 13-Jul-00	AOC1-SW07 13-Jul-00	Dup of SW-04 AOC1-SW08 13-Jul-00	SW-1 30-Jul-96	SW-2 30-Jul-96	SW-4 ERM, 1990	SW-1 M&E, 1988	SW-2 M&E, 1988	SW-3 M&E, 1988	SW-4 M&E, 1988	SW-5 M&E, 1988
VOLATILES															
Acetone	67-64-1	µg/L	10	10 U	2.5	2.2	10 U	5 U	5 U	--	10 J	10 UJ	10 U	10 UJ	10 U
Carbon disulfide	75-15-0	µg/L	0.99	1 U	0.99	0.36	1 U	5 U	5 U	--	--	--	--	--	--
1,1-Dichloroethane	75-34-3	µg/L	27	1 U	1 U	1 U	1 U	5 U	5 U	27	--	--	--	--	--
Toluene	108-88-3	µg/L	0.24	1 U	1 U	0.24	1 U	5 U	5 U	--	--	--	--	--	--
Trichloroethene	79-01-6	µg/L	10	1 U	1 U	1 U	1 U	5 U	5 U	10	--	--	--	--	--
SEMIVOLATILES															
bis(2-Ethylhexyl) phthalate	117-81-7	µg/L	73	16	19	10 U	73	--	--	--	--	--	--	--	--
METALS															
Aluminum	7429-90-5	µg/L	313	27.7	313	61.2	24.9		--	--	--				
Arsenic	7440-38-2	µg/L	3.8	2.6 U	2.6 U	2.6 U	2.6 U	2 U	2 U	--	3.8	1.5 U	1.5 U	1.5 U	1.5 U
Barium	7440-39-3	µg/L	55	21.1	27.9	2.8	21.3	22	19	--	13	37	22	55	22
Beryllium	7440-41-7	µg/L	0.09	0.071 U	0.071 U	0.071 U	0.09	--	--	--	--	--	--	--	--
Cadmium	7440-43-9	µg/L	30	0.49 U	0.49 U	0.49 U	0.49 U	--	--	30	--	--	--	--	--
Calcium	7440-70-2	µg/L		26000	30600	16800	27000	--	--	--	--	--	--	--	--
Chromium	7440-47-3	µg/L	18	1 U	1.3	1 U	1 U	4 U	4 U	--	18	5 U	5 U	5 U	5 U
Copper	7440-50-8	µg/L	3.7	2.2 U	3.7	2.2 U	2.2 U	--	--	--	--	--	--	--	--
Iron	7439-89-6	µg/L		109	734	919	101	--	--	--	--	--	--	--	--
Lead	7439-92-1	µg/L	42	1.9 U	3.7	1.9 U	1.9 U	4	3	--	39	16	27	42	2.5 U
Magnesium	7439-95-4	µg/L		17100	17300	4650	17700	--	--	--	--	--	--	--	--
Manganese	7439-96-5	µg/L	320	98.5	320	116	96.9	--	--	--	--	--	--	--	--
Mercury	7439-97-6	µg/L	0.058	0.047	0.058	0.045 U	0.05	--	--	--	--	--	--	--	--
Potassium	7440-09-7	µg/L		2380	2530	558	2720	--	--	--	--	--	--	--	--
Selenium	7782-49-2	µg/L	2.6	2.6	2.1 U	2.1 U	2.1 U	--	--	--	--	--	--	--	--
Sodium	7440-23-5	µg/L		83200	82800	1160	85400	--	--	--	--	--	--	--	--
Zinc	7440-66-6	µg/L	24.3	20.1	24.3	15.2	11.6	--	--	--	--	--	--	--	--

AOC1-SW08 is a field duplicate of AOC 1-SW04.
U = Analyte not detected; the number is the analytical reporting limit.
J = Estimated Value
ND = Not Detected

a. < and J reported together indicate that the analyte was detected at a concentration lower than the instrument detection limit. The value reported is the instrument detection limit.
b. < indicates that the analyte was not detected. The value reported is the detection limit.
c. Sample aliqout warmed for 15 minutes at ambient air temperature (16C) before measuring temperature.

Table J.7.6
Comparison of Site Concentration to Background Surface Soils
SADVA - AOCs 1 and 7

CAS No.	Compound [1]	Exposure Point Concentration (units)		EPC Max or UCL?	Site Background Range (units)				EPC Exceeds Background?
	Volatiles								
67-64-1	Acetone	2600	µg/kg	Max	ND	-	3.1	µg/kg	yes
78-93-3	2-Butanone	170	µg/kg	Max					yes
100-41-4	Ethylbenzene	24	µg/kg	Max					yes
108-88-3	Toluene	4	µg/kg	Max					yes
79-01-6	Trichloroethene	4.4	µg/kg	UCL					yes
1330-20-7	Xylenes (total)	530	µg/kg	Max					yes
	Semivolatiles								
86-74-8	Carbazole	1300	µg/kg	Max	ND	-	54	µg/kg	yes
105-67-9	2,4-Dimethylphenol	150	µg/kg	Max					yes
84-74-2	Di-n-butyl phthalate	100	µg/kg	Max					yes
86-30-6	N-Nitrosodiphenylamine	68	µg/kg	Max					yes
	CPAHs								
56-55-3	Benzo(a)anthracene	730	µg/kg	UCL	ND	-	410	µg/kg	yes
50-32-8	Benzo(a)pyrene	700	µg/kg	UCL	ND	-	550	µg/kg	yes
205-99-2	Benzo(b)fluoranthene	850	µg/kg	UCL	ND	-	620	µg/kg	yes
207-08-9	Benzo(k)fluoranthene	330	µg/kg	UCL	ND	-	550	µg/kg	**no**
218-01-9	Chrysene	2800	µg/kg	Max	ND	-	680	µg/kg	yes
53-70-3	Dibenz(a,h)anthracene	230	µg/kg	UCL	ND	-	55	µg/kg	yes
193-39-5	Indeno(1,2,3-cd)pyrene	460	µg/kg	UCL	ND	-	230	µg/kg	yes
	NPAH								
83-32-9	Acenaphthene	350	µg/kg	Max					yes
200-96-8	Acenaphthylene (as Acenaphthene)	120	µg/kg	Max					yes
120-12-7	Anthracene	730	µg/kg	Max	ND	-	61	µg/kg	yes
132-64-9	Dibenzofuran	120	µg/kg	Max					yes
206-44-0	Fluoranthene	6100	µg/kg	Max	ND	-	940	µg/kg	yes
86-73-7	Fluorene	220	µg/kg	Max	ND	-	23	µg/kg	yes
91-57-6	2-Methylnaphthalene (as Naphthalene)	230	µg/kg	Max					yes
91-20-3	Naphthalene	410	µg/kg	Max					yes
85-01-8	Phenanthrene (as Pyrene)	3100	µg/kg	Max	ND	-	480	µg/kg	yes
129-00-0	Pyrene	4200	µg/kg	Max	ND	-	750	µg/kg	yes
	PESTICIDE								
72-54-8	4,4'-DDD	2.7	µg/kg	Max	ND	-	1.2	µg/kg	yes
72-55-9	4,4'-DDE	2.1	µg/kg	Max	ND	-	9.4	µg/kg	**no**
50-29-3	4,4'-DDT	6.9	µg/kg	Max	0.61	-	15	µg/kg	**no**
72-20-8	Endrin	0.29	µg/kg	Max					yes
7421-93-4	Endrin aldehyde (based on endrin)	2.9	µg/kg	Max					yes
	PCBs								
11096-82-5	Aroclor 1260	160	µg/kg	Max					yes
	METALS								
7429-90-5	Aluminum	12100	mg/kg	Max	7,080	-	12,800	mg/kg	**no**
7440-36-0	Antimony	0.36	mg/kg	Max	0.2	-	0.59	mg/kg	**no**
7440-38-2	Arsenic	6.7	mg/kg	Max	4.3	-	16.4	mg/kg	**no**
7440-39-3	Barium	47.4	mg/kg	Max	33	-	104	mg/kg	**no**
7440-41-7	Beryllium	0.59	mg/kg	Max	0.38	-	0.67	mg/kg	**no**
7440-43-9	Cadmium	0.65	mg/kg	Max	0.21	-	0.52	mg/kg	yes
7440-47-3	Chromium (total)	110	mg/kg	UCL	9.3	-	17.5	mg/kg	yes
18540-29-9	Chromium VI	350	mg/kg	Max					yes
7440-48-4	Cobalt	13.3	mg/kg	Max	5.3	-	12.2	mg/kg	yes
7440-50-8	Copper	32.7	mg/kg	Max	13.4	-	26.9	mg/kg	yes
7439-92-1	Lead	35.4	mg/kg	Max	16.5	-	60.8	mg/kg	**no**
7439-96-5	Manganese	649	mg/kg	Max	197	-	875	mg/kg	**no**
7439-97-6	Mercury	0.064	mg/kg	Max	0.039	-	0.095	mg/kg	**no**
7440-02-0	Nickel	27.3	mg/kg	Max	10.6	-	24.8	mg/kg	yes
7782-49-2	Selenium	0	mg/kg	Max	0.44	-	1.2	mg/kg	**no**
7440-22-4	Silver	1.9	mg/kg	Max	0.16	-	0.17	mg/kg	yes
7440-28-0	Thallium	0.55	mg/kg	Max	ND	-	0.67	mg/kg	**no**
7440-62-2	Vanadium	25.2	mg/kg	Max	13.7	-	24	mg/kg	yes
7440-66-6	Zinc	114	mg/kg	Max	46	-	134	mg/kg	**no**

[1] Compounds detected in previous studies, including Parsons RI (2005), Malcolm-Pirnie Limited RI (1997).

ND non-detect
UCL 95% Upper Confidence Limit

Table J.7.7
Comparison of Site Concentration to Background
Mixed Depth Soils
SADVA - AOCs 1 and 7

CAS No.	Compound [1]	Exposure Point Concentration (units)		EPC Max or UCL?	Site Background Range (units)				EPC Exceeds Background?
	Volatiles								
67-64-1	Acetone	2600	µg/kg	Max	ND	-	3.1	µg/kg	yes
78-93-3	2-Butanone	170	µg/kg	Max					yes
100-41-4	Ethylbenzene	24	µg/kg	Max					yes
108-88-3	Toluene	4	µg/kg	Max					yes
79-01-6	Trichloroethene	3.8	µg/kg	UCL					yes
1330-20-7	Xylenes (total)	530	µg/kg	Max					yes
	Semivolatiles								
86-74-8	Carbazole	1300	µg/kg	Max	ND	-	54	µg/kg	yes
105-67-9	2,4-Dimethylphenol	150	µg/kg	Max					yes
84-74-2	Di-n-butyl phthalate	100	µg/kg	Max					yes
86-30-6	N-Nitrosodiphenylamine	68	µg/kg	Max					yes
	CPAHs								
56-55-3	Benzo(a)anthracene	510	µg/kg	UCL	ND	-	410	µg/kg	yes
50-32-8	Benzo(a)pyrene	480	µg/kg	UCL	ND	-	550	µg/kg	**no**
205-99-2	Benzo(b)fluoranthene	580	µg/kg	UCL	ND	-	620	µg/kg	**no**
207-08-9	Benzo(k)fluoranthene	290	µg/kg	UCL	ND	-	550	µg/kg	**no**
218-01-9	Chrysene	2800	µg/kg	Max	ND	-	680	µg/kg	yes
53-70-3	Dibenz(a,h)anthracene	220	µg/kg	UCL	ND	-	55	µg/kg	yes
193-39-5	Indeno(1,2,3-cd)pyrene	350	µg/kg	UCL	ND	-	230	µg/kg	yes
	NPAH								
83-32-9	Acenaphthene	350	µg/kg	Max					yes
200-96-8	Acenaphthylene	120	µg/kg	Max					yes
120-12-7	Anthracene	730	µg/kg	Max	ND	-	61	µg/kg	yes
132-64-9	Dibenzofuran	110	µg/kg	Max					yes
206-44-0	Fluoranthene	6100	µg/kg	Max	ND	-	940	µg/kg	yes
86-73-7	Fluorene	220	µg/kg	Max	ND	-	23	µg/kg	yes
91-57-6	2-Methylnaphthalene	230	µg/kg	Max					yes
91-20-3	Naphthalene	410	µg/kg	Max					yes
85-01-8	Phenanthrene	3100	µg/kg	Max	ND	-	480	µg/kg	yes
129-00-0	Pyrene	4200	µg/kg	Max	ND	-	750	µg/kg	yes
	PESTICIDE								
72-54-8	4,4'-DDD	2.7	µg/kg	Max	ND	-	1.2	µg/kg	yes
72-55-9	4,4'-DDE	2.1	µg/kg	Max	ND	-	9.4	µg/kg	**no**
50-29-3	4,4'-DDT	6.9	µg/kg	Max	0.61	-	15	µg/kg	**no**
72-20-8	Endrin	0.29	µg/kg	Max					yes
7421-93-4	Endrin aldehyde (based on endrin)	2.9	µg/kg	Max					yes
	PCBs								
11096-82-5	Aroclor 1260	41	µg/kg	UCL					yes
	METALS								
7429-90-5	Aluminum	12000	mg/kg	UCL	7,080	-	12,800	mg/kg	**no**
7440-36-0	Antimony	0.36	mg/kg	Max	0.2	-	0.59	mg/kg	**no**
7440-38-2	Arsenic	6.7	mg/kg	UCL	4.3	-	16.4	mg/kg	**no**
7440-39-3	Barium	140	mg/kg	Max	33	-	104	mg/kg	yes
7440-41-7	Beryllium	1.2	mg/kg	Max	0.38	-	0.67	mg/kg	yes
7440-43-9	Cadmium	0.65	mg/kg	Max	0.21	-	0.52	mg/kg	yes
7440-47-3	Chromium (total)	64	mg/kg	UCL	9.3	-	17.5	mg/kg	yes
18540-29-9	Chromium VI	350	mg/kg	Max					yes
7440-48-4	Cobalt	15	mg/kg	Max	5.3	-	12.2	mg/kg	yes
7440-50-8	Copper	32.7	mg/kg	Max	13.4	-	26.9	mg/kg	yes
7439-92-1	Lead	35.4	mg/kg	Max	16.5	-	60.8	mg/kg	**no**
7439-96-5	Manganese	649	mg/kg	Max	197	-	875	mg/kg	**no**
7439-97-6	Mercury	0.064	mg/kg	Max	0.039	-	0.095	mg/kg	**no**
7440-02-0	Nickel	27.3	mg/kg	Max	10.6	-	24.8	mg/kg	yes
7782-49-2	Selenium	1	mg/kg	Max	0.44	-	1.2	mg/kg	**no**
7440-22-4	Silver	1.9	mg/kg	Max	0.16	-	0.17	mg/kg	yes
7440-28-0	Thallium	0.57	mg/kg	UCL	ND	-	0.67	mg/kg	**no**
7440-62-2	Vanadium	26	mg/kg	UCL	13.7	-	24	mg/kg	yes
7440-66-6	Zinc	114	mg/kg	Max	46	-	134	mg/kg	**no**

[1] Compounds detected in previous studies, including Parsons RI (2005), Malcolm-Pirnie Limited RI (1997).

ND non-detect
UCL 95% Upper Confidence Limit

Table J.7.8
Comparison of Site Concentration to Background
Sediment
SADVA - AOCs 1 and 7

CAS No.	Compound	Exposure Point Concentration (units)		EPC Max or UCL?	Site-specific Background/upstream Ranges (units)				EPC Exceed Background?
	Volatiles								
67-64-1	Acetone	7.5	µg/kg	MAX	ND	-	14	µg/kg	**no**
	Semivolatiles								
117-81-7	bis(2-Ethylhexyl) phthalate	390	µg/kg	MAX	ND				yes
86-74-8	Carbazole	740	µg/kg	MAX	ND	-	50	µg/kg	yes
132-64-9	Dibenzofuran	310	µg/kg	MAX	ND	-	50	µg/kg	yes
84-74-2	Di-n-butyl Phthalate	350	µg/kg	MAX					yes
	CAPHs								
56-55-3	Benzo(a)anthracene	2400	µg/kg	MAX	ND	-	310	µg/kg	yes
50-32-8	Benzo(a)pyrene	2200	µg/kg	MAX	ND	-	330	µg/kg	yes
205-99-2	Benzo(b)fluoranthene	1900	µg/kg	MAX	ND	-	440	µg/kg	yes
207-08-9	Benzo(k)fluoranthene	2300	µg/kg	MAX	ND	-	360	µg/kg	yes
218-01-9	Chrysene	2400	µg/kg	MAX	ND	-	730	µg/kg	yes
53-70-3	Dibenz(a,h)anthracene	280	µg/kg	MAX	ND				yes
193-39-5	Indeno(1,2,3-cd)pyrene	650	µg/kg	MAX	ND	-	78	µg/kg	yes
	NAPHs								
83-32-9	Acenaphthene	700	µg/kg	MAX	ND	-	92	µg/kg	yes
120-12-7	Anthracene	1500	µg/kg	MAX	ND	-	170	µg/kg	yes
191-24-2	Benzo(ghi)perylene	570	µg/kg	MAX	ND	-	66	µg/kg	yes
206-44-0	Fluoranthene	5400	µg/kg	MAX	ND	-	1,200	µg/kg	yes
86-73-7	Fluorene	650	µg/kg	MAX	ND	-	100	µg/kg	yes
91-57-6	2-Methylnaphthalene	230	µg/kg	MAX	ND				yes
91-20-3	Naphthalene	300	µg/kg	MAX	ND	-	210	µg/kg	yes
85-01-8	Phenanthrene	5800	µg/kg	MAX	ND	-	400	µg/kg	yes
129-00-0	Pyrene	3600	µg/kg	MAX	ND	-	920	µg/kg	yes
	PCBs								
11097-69-1	Aroclor 1254	290	µg/kg	MAX	ND				yes
	Pesticides								
319-85-7	beta-BHC	4.5	µg/kg	MAX					yes
319-86-8	delta-BHC	3.2	µg/kg	MAX	ND				yes
58-89-9	gamma-BHC (lindane)	1.5	µg/kg	MAX					yes
5103-71-9	alpha-Chlordane	1.1	µg/kg	MAX	ND				yes
72-54-8	4,4'-DDD	2400	µg/kg	MAX	ND				yes
72-55-9	4,4'-DDE	540	µg/kg	MAX	ND	-	0.23	µg/kg	yes
50-29-3	4,4'-DDT	630	µg/kg	MAX	ND				yes
959-99-8	Endosulfan I	3.6	µg/kg	MAX					yes
33213-65-9	Endosulfan II	0.31	µg/kg	MAX					yes
72-20-8	Endrin	0.23	µg/kg	MAX	ND				yes
	Metals								
7429-90-5	Aluminum	16400	mg/kg	Max	8040		17,900	mg/kg	**no**
7440-36-0	Antimony	7.9	mg/kg	MAX	ND	-	0.44	mg/kg	yes
7440-38-2	Arsenic	9.5	mg/kg	MAX	3.1	-	5.1	mg/kg	yes
7440-39-3	Barium	258	mg/kg	MAX	53.9	-	141	mg/kg	yes
7440-41-7	Beryllium	2.5	mg/kg	UCL	0.62	-	0.92	mg/kg	yes
7440-43-9	Cadmium	1.2	mg/kg	MAX	ND	-	0.75	mg/kg	yes
7440-47-3	Chromium	359	mg/kg	MAX	11.2	-	22	mg/kg	yes
7440-48-4	Cobalt	47.4	mg/kg	MAX	7.1	-	14	mg/kg	yes
7440-50-8	Copper	491	mg/kg	MAX	13	-	27.7	mg/kg	yes
7439-92-1	Lead	450	mg/kg	UCL	7.8	-	20.9	mg/kg	yes
7439-96-5	Manganese	1500	mg/kg	UCL	328	-	647	mg/kg	yes
7439-97-6	Mercury	0.11	mg/kg	MAX	0.027	-	0.091	mg/kg	yes
7440-02-0	Nickel	124	mg/kg	MAX	15.6	-	24.5	mg/kg	yes
7782-49-2	Selenium	1.5	mg/kg	MAX	ND	-	0.81	mg/kg	yes
7440-22-4	Silver	0.66	mg/kg	MAX	ND	-	0.5	mg/kg	yes
7440-28-0	Thallium	0.58	mg/kg	MAX	ND	-	1.5	mg/kg	**no**
7440-62-2	Vanadium	57	mg/kg	UCL	14.6	-	28.4	mg/kg	yes
7440-66-6	Zinc	2960	mg/kg	MAX	47.7	-	118	mg/kg	yes

ND not detected
UCL 95% Upper Confidence Limit

Table J.7.9
Comparison of Site Concentration to Background
Surface Water
SADVA - AOCs 1 and 7

CAS No.	Compound [1]	Exposure Point Concentration (units)		EPC Max or UCL?	Site-specific Upstream Concentration Range (units)				Exceeds Background
	Volatiles								
67-64-1	Acetone	10	µg/L	MAX	ND	-	2	µg/L	yes
75-15-0	Carbon disulfide	0.99	µg/L	MAX					yes
75-34-3	1,1-Dichloroethane	27	µg/L	MAX					yes
108-88-3	Toluene	0.24	µg/L	MAX					yes
79-01-6	Trichloroethene	6.42	µg/L	UCL					yes
	Semivolatiles								
117-81-7	bis(2-Ethylhexyl) phthalate	73	µg/L	MAX	ND	-	26	µg/L	yes
	Metals								
7429-90-5	Aluminum	313	µg/L	MAX	23	-	346	µg/L	**no**
7440-38-2	Arsenic	1.75	µg/L	UCL					yes
7440-39-3	Barium	55	µg/L	MAX	23	-	44	µg/L	yes
7440-41-7	Beryllium	0.09	µg/L	MAX	0.14	-	0.96	µg/L	**no**
7440-43-9	Cadmium	30	µg/L	MAX					yes
7440-47-3	Chromium	6.09	µg/L	UCL	ND	-	1.40	µg/L	yes
7440-50-8	Copper	3.7	µg/L	MAX	ND	-	2.50	µg/L	yes
7439-92-1	Lead	20.6	µg/L	MAX					yes
7439-96-5	Manganese	320	µg/L	MAX	105	-	691	µg/L	**no**
7439-97-6	Mercury	0.058	µg/L	MAX	0.065	-	0.093	µg/L	**no**
7782-49-2	Selenium	2.6	µg/L	MAX				µg/L	yes
7440-66-6	Zinc	24.3	µg/L	MAX	3.90	-	22	µg/L	yes

[1] COCs detected in previous studies, including Parsons RI and Malcolm-Pirnie Limited RI, AOC 1.

Table J.7.10
Comparison to NYSDEC Screening Criteria
Surface Soil
SADVA - AOCs 1 and 7

CAS No.	Compound [1]	Exposure Point Concentration (units)		EPC Max or UCL?	NYSDEC Recommended Soil Cleanup Objective (units)		EPC Exceed NYSDEC?	Residential USEPA Region 6 Risk-Based Screening Level (units)		EPC Exceed USEPA Residential?	Industrial USEPA Region 6 Risk-Based Screening Level (units) [2]		EPC Exceed USEPA Industrial?
	Volatiles												
67-64-1	Acetone	2600	µg/kg	Max	200	µg/kg	yes	14,000,000	µg/kg	no	60,000,000	µg/kg	no
78-93-3	2-Butanone	170	µg/kg	Max	300	µg/kg	no	32,000,000	µg/kg	no	130,000,000	µg/kg	no
100-41-4	Ethylbenzene	24	µg/kg	Max	5,500	µg/kg	no	230,000	µg/kg	no	6,500,000	µg/kg	no
108-88-3	Toluene	4	µg/kg	Max	1,500	µg/kg	no	520,000	µg/kg	no	22,000,000	µg/kg	no
79-01-6	Trichloroethene	4.4	µg/kg	UCL	700	µg/kg	no	46	µg/kg	no	100	µg/kg	no
1330-20-7	Xylenes (total)	530	µg/kg	Max	1,200	µg/kg	no	210,000	µg/kg	no	710,000	µg/kg	no
	Semivolatiles												
86-74-8	Carbazole	1300	µg/kg	Max	N/A		no	24000	µg/kg	no	96,000	µg/kg	no
105-67-9	2,4-Dimethylphenol	150	µg/kg	Max	N/A		no	1,200,000	µg/kg	no	14,000,000	µg/kg	no
84-74-2	Di-n-butyl phthalate	100	µg/kg	Max	8,100	µg/kg	no	6,100,000	µg/kg	no	68,000,000	µg/kg	no
86-30-6	N-Nitrosodiphenylamine	68	µg/kg	Max	N/A		no	99,000	µg/kg	no	390,000	µg/kg	no
	CPAHs												
56-55-3	Benzo(a)anthracene	730	µg/kg	UCL	224	µg/kg	yes	620	µg/kg	yes	2,300	µg/kg	no
50-32-8	Benzo(a)pyrene	700	µg/kg	UCL	61	µg/kg	yes	62	µg/kg	yes	230	µg/kg	yes
205-99-2	Benzo(b)fluoranthene	850	µg/kg	UCL	1,100	µg/kg	no	620	µg/kg	yes	2,300	µg/kg	no
218-01-9	Chrysene	2800	µg/kg	Max	400	µg/kg	yes	62,000	µg/kg	no	230,000	µg/kg	no
53-70-3	Dibenz(a,h)anthracene	230	µg/kg	UCL	14	µg/kg	yes	62	µg/kg	yes	230	µg/kg	no
193-39-5	Indeno(1,2,3-cd)pyrene	460	µg/kg	UCL	3,200	µg/kg	no	620	µg/kg	no	2,300	µg/kg	no
	NPAH												
83-32-9	Acenaphthene	350	µg/kg	Max	50,000	µg/kg	no	3,700,000	µg/kg	no	33,000,000	µg/kg	no
200-96-8	Acenaphthylene (as Acenaphthene	120	µg/kg	Max	41,000	µg/kg	no	3,700,000	µg/kg	no	33,000,000	µg/kg	no
120-12-7	Anthracene	730	µg/kg	Max	50,000	µg/kg	no	22,000,000	µg/kg	no	260,000,000	µg/kg	no
132-64-9	Dibenzofuran	120	µg/kg	Max	6,200	µg/kg	no	150,000	µg/kg	no	1,700,000	µg/kg	no
206-44-0	Fluoranthene	6100	µg/kg	Max	50,000	µg/kg	no	2,300,000	µg/kg	no	24,000,000	µg/kg	no
86-73-7	Fluorene	220	µg/kg	Max	50,000	µg/kg	no	2,600,000	µg/kg	no	26,000,000	µg/kg	no
91-57-6	2-Methylnaphthalene (as Naphthal	230	µg/kg	Max	36,400	µg/kg	no	2,600,000	µg/kg	no	26,000,000	µg/kg	no
91-20-3	Naphthalene	410	µg/kg	Max	13,000	µg/kg	no	120,000	µg/kg	no	210,000	µg/kg	no
85-01-8	Phenanthrene (as Pyrene)	3100	µg/kg	Max	50,000	µg/kg	no	120,000	µg/kg	no	210,000	µg/kg	no
129-00-0	Pyrene	4200	µg/kg	Max	50,000	µg/kg	no	2,300,000	µg/kg	no	32,000,000	µg/kg	no
	PESTICIDE												
72-54-8	4,4'-DDD	2.7	µg/kg	Max	2900	µg/kg	no	2,400	µg/kg	no	11,000	µg/kg	no
72-20-8	Endrin	0.29	µg/kg	Max	100	µg/kg	no	18,000	µg/kg	no	210,000	µg/kg	no
7421-93-4	Endrin aldehyde (based on endrin)	2.9	µg/kg	Max	100	µg/kg	no	18,000	µg/kg	no	210,000	µg/kg	no
	PCBs												
11096-82-5	Aroclor 1260	160	µg/kg	Max	1,000	µg/kg	no	220	µg/kg	no	830	µg/kg	no
	METALS												
7440-43-9	Cadmium	0.65	mg/kg	Max	1	mg/kg	no	39	mg/kg	no	560	mg/kg	no
7440-47-3	Chromium (total)	110	mg/kg	UCL	10	mg/kg	yes	210	mg/kg	no	500	mg/kg	no
18540-29-9	Chromium VI	350	mg/kg	Max	--	mg/kg	no	30	mg/kg	yes	71	mg/kg	yes
7440-48-4	Cobalt	13.3	mg/kg	Max	30	mg/kg	no	900	mg/kg	no	2,100	mg/kg	no
7440-50-8	Copper	32.7	mg/kg	Max	25	mg/kg	yes	2,900	mg/kg	no	42,000	mg/kg	no
7440-02-0	Nickel	27.3	mg/kg	Max	13	mg/kg	yes	1,600	mg/kg	no	23,000	mg/kg	no
7440-22-4	Silver	1.9	mg/kg	Max	--	mg/kg	no	290	mg/kg	no	5,700	mg/kg	no
7440-62-2	Vanadium	25.2	mg/kg	Max	150	mg/kg	no	78	mg/kg	no	1,100	mg/kg	no

[1] Compounds detected in previous studies, including Parsons RI (2005), Malcolm-Pirnie Limited RI (1997).

ND non-detect
UCL 95% Upper Confidence Limit

Table J.7.11
Comparison to NYSDEC Screening Criteria
Mixed Depth Soils
SADVA - AOCs 1 and 7

CAS No.	Compound [1]	Exposure Point Concentration (units)		EPC Max or UCL?	NYSDEC Recommended Soil Cleanup Objective (units)		EPC Exceed NYSDEC?	Residential USEPA Region 6 Risk-Based Screening Level (units)		EPC Exceed USEPA Residential?	Industrial USEPA Region 6 Risk-Based Screening Level (units)		EPC Exceed USEPA Industrial?
	Volatiles												
67-64-1	Acetone	2600	µg/kg	Max	200	µg/kg	yes	14,000,000	µg/kg	no	60,000,000	µg/kg	no
78-93-3	2-Butanone	170	µg/kg	Max	300	µg/kg	no	32,000,000	µg/kg	no	130,000,000	µg/kg	no
100-41-4	Ethylbenzene	24	µg/kg	Max	5,500	µg/kg	no	230,000	µg/kg	no	6,500,000	µg/kg	no
108-88-3	Toluene	4	µg/kg	Max	1,500	µg/kg	no	520,000	µg/kg	no	22,000,000	µg/kg	no
79-01-6	Trichloroethene	3.8	µg/kg	UCL	700	µg/kg	no	46	µg/kg	no	100	µg/kg	no
1330-20-7	Xylenes (total)	530	µg/kg	Max	1,200	µg/kg	no	210,000	µg/kg	no	710,000	µg/kg	no
	Semivolatiles												
86-74-8	Carbazole	1300	µg/kg	Max	N/A		no	24,000	µg/kg	no	96,000	µg/kg	no
105-67-9	2,4-Dimethylphenol	150	µg/kg	Max	N/A		no	1,200,000	µg/kg	no	14,000,000	µg/kg	no
84-74-2	Di-n-butyl phthalate	100	µg/kg	Max	8,100	µg/kg	no	6,100,000	µg/kg	no	68,000,000	µg/kg	no
86-30-6	N-Nitrosodiphenylamine	68	µg/kg	Max	N/A		no	99,000	µg/kg	no	390,000	µg/kg	no
	CPAHs												
56-55-3	Benzo(a)anthracene	510	µg/kg	UCL	224	µg/kg	yes	620	µg/kg	no	2,300	µg/kg	no
218-01-9	Chrysene	2800	µg/kg	Max	400	µg/kg	yes	62,000	µg/kg	no	230,000	µg/kg	no
53-70-3	Dibenz(a,h)anthracene	220	µg/kg	UCL	14	µg/kg	yes	62	µg/kg	yes	230	µg/kg	no
193-39-5	Indeno(1,2,3-cd)pyrene	350	µg/kg	UCL	3,200	µg/kg	no	620	µg/kg	no	2,300	µg/kg	no
	NPAH												
83-32-9	Acenaphthene	350	µg/kg	Max	50,000	µg/kg	no	3,700,000	µg/kg	no	33,000,000	µg/kg	no
200-96-8	Acenaphthylene	120	µg/kg	Max	41,000	µg/kg	no	3,700,000	µg/kg	no	33,000,000	µg/kg	no
120-12-7	Anthracene	730	µg/kg	Max	50,000	µg/kg	no	22,000,000	µg/kg	no	260,000,000	µg/kg	no
132-64-9	Dibenzofuran	110	µg/kg	Max	6,200	µg/kg	no	150,000	µg/kg	no	1,700,000	µg/kg	no
206-44-0	Fluoranthene	6100	µg/kg	Max	50,000	µg/kg	no	2,300,000	µg/kg	no	24,000,000	µg/kg	no
86-73-7	Fluorene	220	µg/kg	Max	50,000	µg/kg	no	2,600,000	µg/kg	no	26,000,000	µg/kg	no
91-57-6	2-Methylnaphthalene	230	µg/kg	Max	36,400	µg/kg	no	120,000	µg/kg	no	210,000	µg/kg	no
91-20-3	Naphthalene	410	µg/kg	Max	13,000	µg/kg	no	120,000	µg/kg	no	210,000	µg/kg	no
85-01-8	Phenanthrene	3100	µg/kg	Max	50,000	µg/kg	no	2,300,000	µg/kg	no	32,000,000	µg/kg	no
129-00-0	Pyrene	4200	µg/kg	Max	50,000	µg/kg	no	2,300,000	µg/kg	no	32,000,000	µg/kg	no
	PESTICIDE												
72-54-8	4,4'-DDD	2.7	µg/kg	Max	2900	µg/kg	no	2,400	µg/kg	no	11,000	µg/kg	no
72-20-8	Endrin	0.29	µg/kg	Max	100	µg/kg	no	18,000	µg/kg	no	210,000	µg/kg	no
7421-93-4	Endrin aldehyde (based on	2.9	µg/kg	Max	100	µg/kg	no	18,000	µg/kg	no	210,000	µg/kg	no
	PCBs												
11096-82-5	Aroclor 1260	41	µg/kg	UCL	1,000	µg/kg	no	220	µg/kg	no	830	µg/kg	no
	METALS												
7440-39-3	Barium	140	mg/kg	Max	300	mg/kg	no	16,000	mg/kg	no	230,000	mg/kg	no
7440-41-7	Beryllium	1.2	mg/kg	Max	0.16	mg/kg	yes	150	mg/kg	no	2,200	mg/kg	no
7440-43-9	Cadmium	0.65	mg/kg	Max	1	mg/kg	no	39	mg/kg	no	560	mg/kg	no
7440-47-3	Chromium (total)	64	mg/kg	UCL	10	mg/kg	yes	210	mg/kg	no	500	mg/kg	no
18540-29-9	Chromium VI	350	mg/kg	Max	N/A	mg/kg	no	30	mg/kg	yes	71	mg/kg	yes
7440-48-4	Cobalt	15	mg/kg	Max	30	mg/kg	no	900	mg/kg	no	2,100	mg/kg	no
7440-50-8	Copper	32.7	mg/kg	Max	25	mg/kg	yes	2,900	mg/kg	no	42,000	mg/kg	no
7440-02-0	Nickel	27.3	mg/kg	Max	13	mg/kg	yes	1,600	mg/kg	no	23,000	mg/kg	no
7440-22-4	Silver	1.9	mg/kg	Max	--	mg/kg	no	290	mg/kg	no	5,700	mg/kg	no
7440-62-2	Vanadium	26	mg/kg	UCL	150	mg/kg	no	78	mg/kg	no	1,100	mg/kg	no

[1] Compounds detected in previous studies, including Parsons RI (2005), Malcolm-Pirnie Limited RI (1997).

UCL 95% Upper Confidence Limit
N/A Criterion not available

Table J.7.12
Comparison to NYSDEC Screening Criteria
Sediment
SADVA - AOCs 1 and 7

CAS No.	Compound	Exposure Point Concentration (units)		EPC Max or UCL?	NYSDEC Recommended Cleanup Objective (units)			EPC Exceed NYSDEC?	TRRP Sediment Protective Concentration Level (units)		EPC Exceed TRRP?
	Semivolatiles										
117-81-7	bis(2-Ethylhexyl) phthalate	390	µg/kg	MAX	2,925	C	µg/kg	no	240,000	µg/kg	no
86-74-8	Carbazole	740	µg/kg	MAX	N/A			no	710,000	µg/kg	no
132-64-9	Dibenzofuran	310	µg/kg	MAX	N/A			no	610,000	µg/kg	no
84-74-2	Di-n-butyl Phthalate	350	µg/kg	MAX	N/A			no	15,000,000	µg/kg	no
	CAPHs										
56-55-3	Benzo(a)anthracene	2400	µg/kg	MAX	19	C	µg/kg	yes	16,000	µg/kg	no
50-32-8	Benzo(a)pyrene	2200	µg/kg	MAX	19	H	µg/kg	yes	16,000	µg/kg	no
205-99-2	Benzo(b)fluoranthene	1900	µg/kg	MAX	19	H	µg/kg	yes	16,000	µg/kg	no
207-08-9	Benzo(k)fluoranthene	2300	µg/kg	MAX	19	H	µg/kg	yes	16,000	µg/kg	no
218-01-9	Chrysene	2400	µg/kg	MAX	19	H	µg/kg	yes	1,600,000	µg/kg	no
53-70-3	Dibenz(a,h)anthracene	280	µg/kg	MAX	88	LM	µg/kg	yes	16,000	µg/kg	no
193-39-5	Indeno(1,2,3-cd)pyrene	650	µg/kg	MAX	19	H	µg/kg	yes	16,000	µg/kg	no
	NAPHs										
83-32-9	Acenaphthene	700	µg/kg	MAX	2,058	C	µg/kg	no	7,400,000	µg/kg	no
120-12-7	Anthracene	1500	µg/kg	MAX	1,573	C	µg/kg	no	37,000,000	µg/kg	no
191-24-2	Benzo(ghi)perylene	570	µg/kg	MAX	N/A			no	3,700,000	µg/kg	no
206-44-0	Fluoranthene	5400	µg/kg	MAX	14,994	C	µg/kg	no	4,900,000	µg/kg	no
86-73-7	Fluorene	650	µg/kg	MAX	118	C	µg/kg	yes	4,900,000	µg/kg	no
91-57-6	2-Methylnaphthalene	230	µg/kg	MAX	500	C	µg/kg	no	490,000	µg/kg	no
91-20-3	Naphthalene	300	µg/kg	MAX	441	C	µg/kg	no	2,500,000	µg/kg	no
85-01-8	Phenanthrene	5800	µg/kg	MAX	1,764	C	µg/kg	yes	3,700,000	µg/kg	no
129-00-0	Pyrene	3600	µg/kg	MAX	14,127	C	µg/kg	no	3,700,000	µg/kg	no
	PCBs										
11097-69-1	Aroclor 1254	290	µg/kg	MAX	284	C	µg/kg	yes	2,300	µg/kg	no
	Pesticides										
319-85-7	beta-BHC	4.5	µg/kg	MAX	N/A			no	14,000	µg/kg	no
319-86-8	delta-BHC	3.2	µg/kg	MAX	N/A			no	14,000	µg/kg	no
58-89-9	gamma-BHC (lindane)	1.5	µg/kg	MAX	N/A			no	20,000	µg/kg	no
5103-71-9	alpha-Chlordane	1.1	µg/kg	MAX	0.44	C	µg/kg	yes	41,000	µg/kg	no
72-54-8	4,4'-DDD	2400	µg/kg	MAX	14.7	W	µg/kg	yes	120,000	µg/kg	no
72-55-9	4,4'-DDE	540	µg/kg	MAX	14.7	W	µg/kg	yes	87,000	µg/kg	no
50-29-3	4,4'-DDT	630	µg/kg	MAX	14.7	C	µg/kg	yes	87,000	µg/kg	no
959-99-8	Endosulfan I	3.6	µg/kg	MAX	N/A			no	310,000	µg/kg	no
33213-65-9	Endosulfan II	0.31	µg/kg	MAX	N/A			no	920,000	µg/kg	no
72-20-8	Endrin	0.23	µg/kg	MAX	0.59	C	µg/kg	no	46,000	µg/kg	no

Table J.7.12
Comparison to NYSDEC Screening Criteria
Sediment
SADVA - AOCs 1 and 7

CAS No.	Compound	Exposure Point Concentration (units)		EPC Max or UCL?	NYSDEC Recommended Cleanup Objective (units)			EPC Exceed NYSDEC?	TRRP Sediment Protective Concentration Level (units)		EPC Exceed TRRP?
	Metals										
7440-36-0	Antimony	7.9	mg/kg	MAX	2	L	mg/kg	yes	83	mg/kg	no
7440-38-2	Arsenic	9.5	mg/kg	MAX	6	L	mg/kg	yes	110	mg/kg	no
7440-39-3	Barium	258	mg/kg	MAX	N/A			no	23,000	mg/kg	no
7440-41-7	Beryllium	2.5	mg/kg	UCL	N/A			no	27	mg/kg	no
7440-43-9	Cadmium	1.2	mg/kg	MAX	0.6	L	mg/kg	yes	1,100	mg/kg	no
7440-47-3	Chromium	359	mg/kg	MAX	26	L	mg/kg	yes	36,000	mg/kg	no
7440-48-4	Cobalt	47.4	mg/kg	MAX	N/A			no	32,000	mg/kg	no
7440-50-8	Copper	491	mg/kg	MAX	16	L	mg/kg	yes	21,000	mg/kg	no
7439-92-1	Lead	450	mg/kg	UCL	31	L	mg/kg	yes	500	mg/kg	no
7439-96-5	Manganese	1500	mg/kg	UCL	460	L	mg/kg	yes	14,000	mg/kg	no
7439-97-6	Mercury	0.11	mg/kg	MAX	0.15	L	mg/kg	no	34	mg/kg	no
7440-02-0	Nickel	124	mg/kg	MAX	16	L	mg/kg	yes	1,400	mg/kg	no
7782-49-2	Selenium	1.5	mg/kg	MAX	N/A			no	2,700	mg/kg	no
7440-22-4	Silver	0.66	mg/kg	MAX	1	L	mg/kg	no	350	mg/kg	no
7440-62-2	Vanadium	57	mg/kg	UCL	N/A			no	330	mg/kg	no
7440-66-6	Zinc	2960	mg/kg	MAX	120	L	mg/kg	yes	76,000	mg/kg	no

N/A screening criteria not available
(C) Benthic Aquatic Chronic Criteria (TOC Adjusted) (NYSDEC, 1999)
(H) Human health Bioaccumulation (TOC Adjusted), (NYSDEC, 1999)
(LM) Medium effects level (TOC adjusted) (Long and Morgan 1990)
(W) Wildlife Bioaccumulation criteria (TOC adjusted) (NYSDEC, 1999)
(L) Lowest effect level (metals) (NYSDEC, 1999)
UCL 95% Upper Confidence Limit

Table J.7.13
Comparison to NYSDEC Screening Criteria
Surface Water
SADVA - AOCs 1 and 7

CAS No.	Compound [1]	Exposure Point Concentration (units)		EPC Max or UCL?	NYSDEC Class A Surface Water (units)		Water Class A: Type	NYSDEC Class C Surface Water (units)		Water Class C: Type	EPC Exceed NYSDEC Class A?	EPC Exceed NYSDEC Class C?	USEPA Region 6 Risk-Based Screening Level (units)		EPC Exceed USEPA?
	Volatiles														
67-64-1	Acetone	10	µg/L	MAX	N/A			N/A			no	no	5,400	µg/L	no
75-15-0	Carbon disulfide	0.99	µg/L	MAX	N/A			N/A			no	no	1,000	µg/L	no
75-34-3	1,1-Dichloroethane	27	µg/L	MAX	N/A			N/A			no	no	1,200	µg/L	no
108-88-3	Toluene	0.24	µg/L	MAX	5	µg/L	H(WS)	6,000	µg/L	H(FC)	no	no	2,300	µg/L	no
79-01-6	Trichloroethene	6.42	µg/L	UCL	5	µg/L	H(WS)	N/A			yes	no	0.028	µg/L	yes
	Semivolatiles														
117-81-7	bis(2-Ethylhexyl) phthalate	73	µg/L	MAX	5	µg/L	H(WS)	N/A			yes	no	4.80	µg/L	yes
	Metals														
7440-38-2	Arsenic	1.75	µg/L	UCL	50	µg/L	H(WS)	N/A			no	no	0.045	µg/L	yes
7440-39-3	Barium	55	µg/L	MAX	1,000	µg/L	H(WS)	N/A			no	no	7,300	µg/L	no
7440-43-9	Cadmium	30	µg/L	MAX	5	µg/L	H(WS)	N/A			yes	no	18	µg/L	yes
7440-47-3	Chromium	6.09	µg/L	UCL	50	µg/L	H(WS)	53	µg/L	A(C) [3*]	no	no	110	µg/L	no
7440-50-8	Copper	3.7	µg/L	MAX	200	µg/L	H(WS)	6	µg/L	A(C) [4*]	no	no	1,400	µg/L	no
7439-92-1	Lead	20.6	µg/L	MAX	50	µg/L	H(WS)	NC		A(C) [5*]	no	no	15	µg/L	yes
7782-49-2	Selenium	2.6	µg/L	MAX	10	µg/L	H(WS)	4.60	µg/L	A(C) [*]	no	no	180	µg/L	no
7440-66-6	Zinc	24.3	µg/L	MAX	N/A		A(C)	N/A		A(C) [6]	no	no	11,000	µg/L	no

[1] COCs detected in previous studies, including Parsons RI and Malcolm-Pirnie Limited RI, AOC 1.
[2] Based on average hardness less than 75 ppm (mg/kg).
[3] Calculated as: (0.86)exp(0.819[ln ppm hardness)] + 0.6848).
[4] Calculated as: (0.96)exp(0.8545[ln ppm hardness)] - 1.702).
[5] Calculated as: {1.46203 - [ln ppm hardness] * 0.145712}exp[ln ppm hardness] - 4.297.
[6] Calculated as: exp(0.85[ln ppm hardness] + 0.884.
H(WS) Source of Drinking Water (surface water).
H(FC) Human consumption of Fish (fresh water).
A(C) Fish Propagation (fresh water).
E Aesthetic (fresh water).

N/A Screening value not available.
[A] Ionic form.
[*] Dissolved form.

Table J.7.14
Risk Ratio Calculations
Surface Soil
SADVA - AOCs 1 and 7

CAS No.	Compound [1]	Exposure Point Concentration (units)		EPC Max or UCL?	Residential USEPA Region 6 Risk-Based Screening Level (units)		Industrial USEPA Region 6 Risk-Based Screening Level (units) [2]		Carcino-genic?	Residential Non-Carc Risk Ratio (EPC/USEPA)	Residential Carc Risk Ratio (EPC/USEPA)	Industrial Non-Carc Risk Ratio (EPC/USEPA)	Industrial Carc Risk Ratio (EPC/USEPA)
	Volatiles												
67-64-1	Acetone	2600	µg/kg	Max	14,000,000	µg/kg	60000000	µg/kg	no	1.9E-04	--	4.3E-05	--
78-93-3	2-Butanone	170	µg/kg	Max	32,000,000	µg/kg	130000000	µg/kg	no	5.3E-06	--	1.3E-06	--
100-41-4	Ethylbenzene	24	µg/kg	Max	230,000	µg/kg	6500000	µg/kg	no	1.0E-04	--	3.7E-06	--
108-88-3	Toluene	4	µg/kg	Max	520,000	µg/kg	22000000	µg/kg	no	7.7E-06	--	1.8E-07	--
79-01-6	Trichloroethene	4.4	µg/kg	UCL	46	µg/kg	100	µg/kg	yes	--	9.6E-08	--	4.4E-08
1330-20-7	Xylenes (total)	530	µg/kg	Max	210,000	µg/kg	710000	µg/kg	no	2.5E-03	--	7.5E-04	--
	Semivolatiles												
86-74-8	Carbazole	1300	µg/kg	Max	24000	µg/kg	96000	µg/kg	yes	--	5.4E-08	--	1.4E-08
105-67-9	2,4-Dimethylphenol	150	µg/kg	Max	1,200,000	µg/kg	14000000	µg/kg	no	1.3E-04	--	1.1E-05	--
84-74-2	Di-n-butyl phthalate	100	µg/kg	Max	6,100,000	µg/kg	68000000	µg/kg	no	1.6E-05	--	1.5E-06	--
86-30-6	N-Nitrosodiphenylamine	68	µg/kg	Max	99,000	µg/kg	390000	µg/kg	yes	--	6.9E-10	--	1.7E-10
	CPAHs												
56-55-3	Benzo(a)anthracene	730	µg/kg	UCL	620	µg/kg	2300	µg/kg	yes	--	1.2E-06	--	3.2E-07
50-32-8	Benzo(a)pyrene	700	µg/kg	UCL	62	µg/kg	230	µg/kg	yes	--	1.1E-05	--	3.0E-06
205-99-2	Benzo(b)fluoranthene	850	µg/kg	UCL	620	µg/kg	2300	µg/kg	yes	--	1.4E-06	--	3.7E-07
218-01-9	Chrysene	2800	µg/kg	Max	62,000	µg/kg	230000	µg/kg	yes	--	4.5E-08	--	1.2E-08
53-70-3	Dibenz(a,h)anthracene	230	µg/kg	UCL	62	µg/kg	230	µg/kg	yes	--	3.7E-06	--	1.0E-06
193-39-5	Indeno(1,2,3-cd)pyrene	460	µg/kg	UCL	620	µg/kg	2300	µg/kg	yes	--	7.4E-07	--	2.0E-07
	NPAH												
83-32-9	Acenaphthene	350	µg/kg	Max	3,700,000	µg/kg	33000000	µg/kg	no	9.5E-05	--	1.1E-05	--
200-96-8	Acenaphthylene (as Acenaphthene)	120	µg/kg	Max	3,700,000	µg/kg	33000000	µg/kg	no	3.2E-05	--	3.6E-06	--
120-12-7	Anthracene	730	µg/kg	Max	22,000,000	µg/kg	260000000	µg/kg	no	3.3E-05	--	2.8E-06	--
132-64-9	Dibenzofuran	120	µg/kg	Max	150,000	µg/kg	1700000	µg/kg	no	8.0E-04	--	7.1E-05	--
206-44-0	Fluoranthene	6100	µg/kg	Max	2,300,000	µg/kg	24000000	µg/kg	no	2.7E-03	--	2.5E-04	--
86-73-7	Fluorene	220	µg/kg	Max	2,600,000	µg/kg	26000000	µg/kg	no	8.5E-05	--	8.5E-06	--
91-57-6	2-Methylnaphthalene (as Naphthalene)	230	µg/kg	Max	2,600,000	µg/kg	26000000	µg/kg	no	8.8E-05	--	8.8E-06	--
91-20-3	Naphthalene	410	µg/kg	Max	120,000	µg/kg	210000	µg/kg	no	3.4E-03	--	2.0E-03	--
85-01-8	Phenanthrene (as Pyrene)	3100	µg/kg	Max	120,000	µg/kg	210000	µg/kg	no	2.6E-02	--	1.5E-02	--
129-00-0	Pyrene	4200	µg/kg	Max	2,300,000	µg/kg	32000000	µg/kg	no	1.8E-03	--	1.3E-04	--
	PESTICIDE												
72-54-8	4,4'-DDD	2.7	µg/kg	Max	2,400	µg/kg	11000	µg/kg	yes	--	1.1E-09	--	2.5E-10
72-20-8	Endrin	0.29	µg/kg	Max	18,000	µg/kg	210000	µg/kg	no	1.6E-05	--	1.4E-06	--
7421-93-4	Endrin aldehyde (based on endrin)	2.9	µg/kg	Max	18,000	µg/kg	210000	µg/kg	no	1.6E-04	--	1.4E-05	--
	PCBs												
11096-82-5	Aroclor 1260	160	µg/kg	Max	220	µg/kg	830	µg/kg	yes	--	7.3E-07	--	1.9E-07
	METALS												
7440-43-9	Cadmium	0.65	mg/kg	Max	39	mg/kg	560	mg/kg	no	1.7E-02	--	1.2E-03	--
7440-47-3	Chromium (total)	110	mg/kg	UCL	210	mg/kg	500	mg/kg	no	5.2E-01	--	2.2E-01	--
18540-29-9	Chromium VI	350	mg/kg	Max	30	mg/kg	71	mg/kg	yes	--	1.2E-05	--	4.9E-06
7440-48-4	Cobalt	13.3	mg/kg	Max	900	mg/kg	2100	mg/kg	yes	--	1.5E-08	--	6.3E-09
7440-50-8	Copper	32.7	mg/kg	Max	2,900	mg/kg	42000	mg/kg	no	1.1E-02	--	7.8E-04	--
7440-02-0	Nickel	27.3	mg/kg	Max	1,600	mg/kg	23000	mg/kg	no	1.7E-02	--	1.2E-03	--
7440-22-4	Silver	1.9	mg/kg	Max	290	mg/kg	5700	mg/kg	no	6.6E-03	--	3.3E-04	--
7440-62-2	Vanadium	25.2	mg/kg	Max	78	mg/kg	1100	mg/kg	no	3.2E-01	--	2.3E-02	--
										0.94	**3.1E-05**	**0.26**	**1.0E-05**

[1] Compounds detected in previous studies, including Parsons RI (2005), Malcolm-Pirnie Limited RI (1997).

UCL 95% Upper Confidence Limit

Table J.7.15
Risk Ratio Calculations
Mixed Depth Soils
SADVA - AOCs 1 and 7

CAS No.	Compound [1]	Exposure Point Concentration		EPC Max or UCL?	Residential USEPA Region 6 Risk-Based Screening Level (units)		Industrial USEPA Region 6 Risk-Based Screening Level (units)		Carcino-genic?	Residential Non-Carc Risk Ratio (EPC/USEPA)	Residential Carc Risk Ratio (EPC/USEPA)	Industrial Non-Carc Risk Ratio (EPC/USEPA)	Industrial Carc Risk Ratio (EPC/USEPA)
	Volatiles												
67-64-1	Acetone	2600	µg/kg	Max	14,000,000	µg/kg	60000000	µg/kg	no	1.9E-04	--	4.3E-05	--
78-93-3	2-Butanone	170	µg/kg	Max	32,000,000	µg/kg	130000000	µg/kg	no	5.3E-06	--	1.3E-06	--
100-41-4	Ethylbenzene	24	µg/kg	Max	230,000	µg/kg	6500000	µg/kg	no	1.0E-04	--	3.7E-06	--
108-88-3	Toluene	4	µg/kg	Max	520,000	µg/kg	22000000	µg/kg	no	7.7E-06	--	1.8E-07	--
79-01-6	Trichloroethene	3.8	µg/kg	UCL	46	µg/kg	100	µg/kg	yes	--	8.3E-08	--	3.8E-08
1330-20-7	Xylenes (total)	530	µg/kg	Max	210,000	µg/kg	710000	µg/kg	no	2.5E-03	--	7.5E-04	--
	Semivolatiles												
86-74-8	Carbazole	1300	µg/kg	Max	24000	µg/kg	96000	µg/kg	yes	--	5.4E-08	--	1.4E-08
105-67-9	2,4-Dimethylphenol	150	µg/kg	Max	1,200,000	µg/kg	14000000	µg/kg	no	1.3E-04	--	1.1E-05	--
84-74-2	Di-n-butyl phthalate	100	µg/kg	Max	6,100,000	µg/kg	68000000	µg/kg	no	1.6E-05	--	1.5E-06	--
86-30-6	N-Nitrosodiphenylamine	68	µg/kg	Max	99,000	µg/kg	390000	µg/kg	yes	--	6.9E-10	--	1.7E-10
	CPAHs												
56-55-3	Benzo(a)anthracene	510	µg/kg	UCL	620	µg/kg	2300	µg/kg	yes	--	8.2E-07	--	2.2E-07
218-01-9	Chrysene	2800	µg/kg	Max	62,000	µg/kg	230000	µg/kg	yes	--	4.5E-08	--	1.2E-08
53-70-3	Dibenz(a,h)anthracene	220	µg/kg	UCL	62	µg/kg	230	µg/kg	yes	--	3.5E-06	--	9.6E-07
193-39-5	Indeno(1,2,3-cd)pyrene	350	µg/kg	UCL	620	µg/kg	2300	µg/kg	yes	--	5.6E-07	--	1.5E-07
	NPAH												
83-32-9	Acenaphthene	350	µg/kg	Max	3,700,000	µg/kg	33000000	µg/kg	no	9.5E-05	--	1.1E-05	--
200-96-8	Acenaphthylene	120	µg/kg	Max	3,700,000	µg/kg	33000000	µg/kg	no	3.2E-05	--	3.6E-06	--
120-12-7	Anthracene	730	µg/kg	Max	22,000,000	µg/kg	260000000	µg/kg	no	3.3E-05	--	2.8E-06	--
132-64-9	Dibenzofuran	110	µg/kg	Max	150,000	µg/kg	1700000	µg/kg	no	7.3E-04	--	6.5E-05	--
206-44-0	Fluoranthene	6100	µg/kg	Max	2,300,000	µg/kg	24000000	µg/kg	no	2.7E-03	--	2.5E-04	--
86-73-7	Fluorene	220	µg/kg	Max	2,600,000	µg/kg	26000000	µg/kg	no	8.5E-05	--	8.5E-06	--
91-57-6	2-Methylnaphthalene	230	µg/kg	Max	120,000	µg/kg	210000	µg/kg	no	1.9E-03	--	1.1E-03	--
91-20-3	Naphthalene	410	µg/kg	Max	120,000	µg/kg	210000	µg/kg	no	3.4E-03	--	2.0E-03	--
85-01-8	Phenanthrene	3100	µg/kg	Max	2,300,000	µg/kg	32000000	µg/kg	no	1.3E-03	--	9.7E-05	--
129-00-0	Pyrene	4200	µg/kg	Max	2,300,000	µg/kg	32000000	µg/kg	no	1.8E-03	--	1.3E-04	--
	PESTICIDE												
72-54-8	4,4'-DDD	2.7	µg/kg	Max	2,400	µg/kg	11000	µg/kg	yes	--	1.1E-09	--	2.5E-10
72-20-8	Endrin	0.29	µg/kg	Max	18,000	µg/kg	210000	µg/kg	no	1.6E-05	--	1.4E-06	--
7421-93-4	Endrin aldehyde (based on end	2.9	µg/kg	Max	18,000	µg/kg	210000	µg/kg	no	1.6E-04	--	1.4E-05	--
	PCBs												
11096-82-5	Aroclor 1260	41	µg/kg	UCL	220	µg/kg	830	µg/kg	yes	--	1.9E-07	--	4.9E-08
	METALS												
7440-39-3	Barium	140	mg/kg	Max	16,000	mg/kg	230000	mg/kg	no	8.8E-03	--	6.1E-04	--
7440-41-7	Beryllium	1.2	mg/kg	Max	150	mg/kg	2200	mg/kg	no	8.0E-03	--	5.5E-04	--
7440-43-9	Cadmium	0.65	mg/kg	Max	39	mg/kg	560	mg/kg	no	1.7E-02	--	1.2E-03	--
7440-47-3	Chromium (total)	64	mg/kg	UCL	210	mg/kg	500	mg/kg	no	3.0E-01	--	1.3E-01	--
18540-29-9	Chromium VI	350	mg/kg	Max	30	mg/kg	71	mg/kg	yes	--	1.2E-05	--	4.9E-06
7440-48-4	Cobalt	15	mg/kg	Max	900	mg/kg	2100	mg/kg	yes	--	1.7E-08	--	7.1E-09
7440-50-8	Copper	32.7	mg/kg	Max	2,900	mg/kg	42000	mg/kg	no	1.1E-02	--	7.8E-04	--
7440-02-0	Nickel	27.3	mg/kg	Max	1,600	mg/kg	23000	mg/kg	no	1.7E-02	--	1.2E-03	--
7440-22-4	Silver	1.9	mg/kg	Max	290	mg/kg	5700	mg/kg	no	6.6E-03	--	3.3E-04	--
7440-62-2	Vanadium	26	mg/kg	UCL	78	mg/kg	1100	mg/kg	no	3.3E-01	--	2.4E-02	--

[1] Compounds detected in previous studies, including Parsons RI (2005), Malcolm-Pirnie Limited RI (1997).

Cummulative Risk Ratio 0.72 1.7E-05 0.16 6.4E-06

UCL 95% Upper Confidence Limit

Table J.7.16
Risk Ratio Calculations
Sediment
SADVA - AOCs 1 and 7

CAS No.	Compound [1]	Exposure Point Concentration (units)		EPC Max or UCL?	TRRPSediment Protective Concentration Level (units)		Carcino-genic?	Non-Carc Risk Ratio (EPC/TRRP)	Carc Risk Ratio (EPC/TRRP)
	Semivolatiles								
117-81-7	bis(2-Ethylhexyl) phthalate	390	µg/kg	MAX	240,000	µg/kg	yes	--	1.63E-08
86-74-8	Carbazole	740	µg/kg	MAX	710,000	µg/kg	yes	--	1.04E-08
132-64-9	Dibenzofuran	310	µg/kg	MAX	610,000	µg/kg	no	5.08E-04	--
84-74-2	Di-n-butyl Phthalate	350	µg/kg	MAX	15,000,000	µg/kg	no	2.33E-05	--
	CAPHs								
56-55-3	Benzo(a)anthracene	2400	µg/kg	MAX	16,000	µg/kg	yes	--	1.50E-06
50-32-8	Benzo(a)pyrene	2200	µg/kg	MAX	16,000	µg/kg	yes	--	1.38E-06
205-99-2	Benzo(b)fluoranthene	1900	µg/kg	MAX	16,000	µg/kg	yes	--	1.19E-06
207-08-9	Benzo(k)fluoranthene	2300	µg/kg	MAX	16,000	µg/kg	yes	--	1.44E-06
218-01-9	Chrysene	2400	µg/kg	MAX	1,600,000	µg/kg	yes	--	1.50E-08
53-70-3	Dibenz(a,h)anthracene	280	µg/kg	MAX	16,000	µg/kg	yes	--	1.75E-07
193-39-5	Indeno(1,2,3-cd)pyrene	650	µg/kg	MAX	16,000	µg/kg	yes	--	4.06E-07
	NAPHs								
83-32-9	Acenaphthene	700	µg/kg	MAX	7,400,000	µg/kg	no	9.46E-05	--
120-12-7	Anthracene	1500	µg/kg	MAX	37,000,000	µg/kg	no	4.05E-05	--
191-24-2	Benzo(ghi)perylene	570	µg/kg	MAX	3,700,000	µg/kg	yes	--	1.54E-09
206-44-0	Fluoranthene	5400	µg/kg	MAX	4,900,000	µg/kg	no	1.10E-03	--
86-73-7	Fluorene	650	µg/kg	MAX	4,900,000	µg/kg	no	1.33E-04	--
91-57-6	2-Methylnaphthalene	230	µg/kg	MAX	490,000	µg/kg	no	4.69E-04	--
91-20-3	Naphthalene	300	µg/kg	MAX	2,500,000	µg/kg	no	1.20E-04	--
85-01-8	Phenanthrene	5800	µg/kg	MAX	3,700,000	µg/kg	no	1.57E-03	--
129-00-0	Pyrene	3600	µg/kg	MAX	3,700,000	µg/kg	no	9.73E-04	--
	PCBs								
11097-69-1	Aroclor 1254	290	µg/kg	MAX	2,300	µg/kg	yes	--	1.26E-06
	Pesticides								
319-85-7	beta-BHC	4.5	µg/kg	MAX	14,000	µg/kg	yes	--	3.21E-09
319-86-8	delta-BHC	3.2	µg/kg	MAX	14,000	µg/kg	yes	--	2.29E-09
58-89-9	gamma-BHC (lindane)	1.5	µg/kg	MAX	20,000	µg/kg	yes	--	7.50E-10
5103-71-9	alpha-Chlordane	1.1	µg/kg	MAX	41,000	µg/kg	yes	--	2.68E-10
72-54-8	4,4'-DDD	2400	µg/kg	MAX	120,000	µg/kg	yes	--	2.00E-07
72-55-9	4,4'-DDE	540	µg/kg	MAX	87,000	µg/kg	yes	--	6.21E-08
50-29-3	4,4'-DDT	630	µg/kg	MAX	87,000	µg/kg	yes	--	7.24E-08
959-99-8	Endosulfan I	3.6	µg/kg	MAX	310,000	µg/kg	no	1.16E-05	--
33213-65-9	Endosulfan II	0.31	µg/kg	MAX	920,000	µg/kg	no	3.37E-07	--
72-20-8	Endrin	0.23	µg/kg	MAX	46,000	µg/kg	no	5.00E-06	--
	Metals								
7440-36-0	Antimony	7.9	mg/kg	MAX	83	mg/kg	no	9.52E-02	--
7440-38-2	Arsenic	9.5	mg/kg	MAX	110	mg/kg	no	8.64E-02	--
7440-39-3	Barium	258	mg/kg	MAX	23,000	mg/kg	no	1.12E-02	--
7440-41-7	Beryllium	2.5	mg/kg	UCL	27	mg/kg	no	9.26E-02	--
7440-43-9	Cadmium	1.2	mg/kg	MAX	1,100	mg/kg	no	1.09E-03	--
7440-47-3	Chromium	359	mg/kg	MAX	36,000	mg/kg	yes	--	9.97E-08
7440-48-4	Cobalt	47.4	mg/kg	MAX	32,000	mg/kg	yes	--	1.48E-08
7440-50-8	Copper	491	mg/kg	MAX	21,000	mg/kg	no	2.34E-02	--
7439-92-1	Lead	450	mg/kg	UCL	500	mg/kg	no	9.00E-01	--
7439-96-5	Manganese	1500	mg/kg	UCL	14,000	mg/kg	no	1.07E-01	--
7439-97-6	Mercury	0.11	mg/kg	MAX	34	mg/kg	no	3.24E-03	--
7440-02-0	Nickel	124	mg/kg	MAX	1,400	mg/kg	no	8.86E-02	--
7782-49-2	Selenium	1.5	mg/kg	MAX	2,700	mg/kg	no	5.56E-04	--
7440-22-4	Silver	0.66	mg/kg	MAX	350	mg/kg	no	1.89E-03	--
7440-62-2	Vanadium	57	mg/kg	UCL	330	mg/kg	no	1.73E-01	--
7440-66-6	Zinc	2960	mg/kg	MAX	76,000	mg/kg	no	3.89E-02	--
							Cumulative Risk Ratio	**0.73**	**7.8E-06**

[1] COCs detected in previous studies, including Parsons RI and Malcolm-Pirnie Limited RI, AOC 1.

UCL 95% Upper Confidence Limit

Table J.7.17
Risk Ratio Calculations
Surface Water
SADVA - AOCs 1 and 7

CAS No.	Compound [1]	Exposure Point Concentration (units)		EPC Max or UCL?	USEPA Region 6 Risk-Based Screening Level (units)		Carcino-genic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)	
	Volatiles									
67-64-1	Acetone	10	µg/L	MAX	5,400	µg/L	no	1.85E-03	--	
75-15-0	Carbon disulfide	0.99	µg/L	MAX	1,000	µg/L	no	9.90E-04	--	
75-34-3	1,1-Dichloroethane	27	µg/L	MAX	1,200	µg/L	no	2.25E-02	--	
108-88-3	Toluene	0.24	µg/L	MAX	2,300	µg/L	no	1.04E-04	--	
79-01-6	Trichloroethene	6.42	µg/L	UCL	0.028	µg/L	yes	--	2.29E-04	
	Semivolatiles									
117-81-7	bis(2-Ethylhexyl) phthalate	73	µg/L	MAX	4.80	µg/L	yes	--	1.52E-05	Not enough samples to calculate UCL
	Metals									
7440-38-2	Arsenic	1.75	µg/L	UCL	0.045	µg/L	yes	--	3.89E-05	
7440-39-3	Barium	55	µg/L	MAX	7,300	µg/L	no	7.53E-03	--	
7440-43-9	Cadmium	30	µg/L	MAX	18	µg/L	no	1.67E+00	--	Not enough samples to calculate UCL
7440-47-3	Chromium	6.09	µg/L	UCL	110	µg/L	yes	--	5.54E-08	
7440-50-8	Copper	3.7	µg/L	MAX	1,400	µg/L	no	2.64E-03	--	
7439-92-1	Lead	20.6	µg/L	MAX	15	µg/L	no	1.37E+00	--	
7782-49-2	Selenium	2.6	µg/L	MAX	180	µg/L	no	1.44E-02	--	
7440-66-6	Zinc	24.3	µg/L	MAX	11,000	µg/L	no	2.21E-03	--	
					Cumulative Risk Ratio			**1.7**	**2.8E-04**	

[1] COCs detected in previous studies, including Parsons RI and Malcolm-Pirnie Limited RI, AOC 1.

Table J.7.18
Risk Ratio Calculations
AOC 1/7 Well Number E4800
Groundwater Former SADVA

Residential Well E4800

CAS NUMBER	Compound	Exposure Point Concentration (μg/L)	USEPA Region 6 Risk-Based Screening Level (μg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
	VOLATILES					
67-64-1	Acetone	29	5,475.00	no	0.00530	--
75-09-2	Methylene chloride	2.4	4.28	yes	--	5.6E-07
	METALS					
7440-38-2	Arsenic		0.04	yes		
7440-39-3	Barium		7,300.00	no		
7440-47-3	Chromium		54,750.00	no		
7440-50-8	Copper		1,355.71	no		
7439-92-1	Lead		15.00	no		
7440-02-0	Nickel		730.00	no		
7440-24-6	Strontium		21,900.00	no		
7440-66-6	Zinc	10	10,950.00	no	0.00091	--

Cumulative Risk Ratio	**0.0062**	**5.6E-07**

blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well
Cumulative Risk Ratio does not include lead

USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224 kb) (revised 05/04/07) located at http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm.

Table J.7.19
Risk Ratio Calculations
AOC 1/7 Well Number E4801
Groundwater Former SADVA

Residential Well E4801

CAS NUMBER	Compound	Exposure Point Concentration (µg/L)	USEPA Region 6 Risk-Based Screening Level (µg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
	VOLATILES					
67-64-1	Acetone	21	5,475.00	no	0.0038	--
75-09-2	Methylene chloride	4.8	4.28	yes	--	1.1E-06
	METALS					
7440-38-2	Arsenic		0.04	yes		
7440-39-3	Barium		7,300.00	no		
7440-47-3	Chromium	10	54,750.00	no	0.00018	--
7440-50-8	Copper		1,355.71	no		
7439-92-1	Lead		15.00	no		
7440-02-0	Nickel		730.00	no		
7440-24-6	Strontium		21,900.00	no		
7440-66-6	Zinc	20	10,950.00	no	0.0018	--

Cumulative Risk Ratio **0.0058** **1.1E-06**

blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well
Cumulative Risk Ratio does not include lead

USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224 kb) (revised 05/04/07) located at http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm.

Table J.7.20
Risk Ratio Calculations
AOC 1/7 Well Number E4802
Groundwater Former SADVA

Residential Well E4802

CAS NUMBER	Compound	Exposure Point Concentration (µg/L)	USEPA Region 6 Risk-Based Screening Level (µg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
	VOLATILES					
67-64-1	Acetone	20	5,475.00	no	0.0037	--
75-09-2	Methylene chloride	1.9	4.28	yes	--	4.4E-07
	METALS					
7440-38-2	Arsenic		0.04	yes		
7440-39-3	Barium		7,300.00	no		
7440-47-3	Chromium	10	54,750.00	no	0.00018	--
7440-50-8	Copper		1,355.71	no		
7439-92-1	Lead		15.00	no		
7440-02-0	Nickel		730.00	no		
7440-24-6	Strontium		21,900.00	no		
7440-66-6	Zinc	20	10,950.00	no	0.0018	--

Cumulative Risk Ratio	**0.0057**	**4.4E-07**

blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well
Cumulative Risk Ratio does not include lead

USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224 kb) (revised 05/04/07) located at http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm.

Table J.7.21
Risk Ratio Calculations
AOC 1/7 Well Number E4803
Groundwater Former SADVA

Residential Well E4803

CAS NUMBER	Compound	Exposure Point Concentration (µg/L)	USEPA Region 6 Risk-Based Screening Level (µg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
	VOLATILES					
67-64-1	Acetone		5,475.00	no		
75-09-2	Methylene chloride		4.28	yes		
	METALS					
7440-38-2	Arsenic		0.04	yes		
7440-39-3	Barium	319	7,300.00	no	0.044	--
7440-47-3	Chromium	44	54,750.00	no	0.00080	--
7440-50-8	Copper	55	1,355.71	no	0.041	--
7439-92-1	Lead		15.00	no		
7440-02-0	Nickel	3.4	730.00	no	0.0047	--
7440-24-6	Strontium		21,900.00	no		
7440-66-6	Zinc		10,950.00	no		

Cumulative Risk Ratio **0.090** **0.0E+00**

blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well
Cumulative Risk Ratio does not include lead

USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224 kb) (revised 05/04/07) located at http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm.

Table J.7.22
Risk Ratio Calculations
AOC 1/7 Well Number E4804
Groundwater Former SADVA

Residential Well E4804

CAS NUMBER	Compound	Exposure Point Concentration (µg/L)	USEPA Region 6 Risk-Based Screening Level (µg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
	VOLATILES					
67-64-1	Acetone		5,475.00	no		
75-09-2	Methylene chloride	2.6	4.28	yes	--	6.1E-07
	METALS					
7440-38-2	Arsenic		0.04	yes		
7440-39-3	Barium		7,300.00	no		
7440-47-3	Chromium	30	54,750.00	no	0.00055	--
7440-50-8	Copper		1,355.71	no		
7439-92-1	Lead		15.00	no		
7440-02-0	Nickel		730.00	no		
7440-24-6	Strontium		21,900.00	no		
7440-66-6	Zinc	30	10,950.00	no	0.0027	--

Cumulative Risk Ratio **0.0033** **6.1E-07**

blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well
Cumulative Risk Ratio does not include lead

USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224 kb) (revised 05/04/07) located at http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm.

Table J.7.23
Risk Ratio Calculations
AOC 1/7 Well Number E4806
Groundwater Former SADVA

Residential Well E4806

CAS NUMBER	Compound	Exposure Point Concentration (µg/L)	USEPA Region 6 Risk-Based Screening Level (µg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
	VOLATILES					
67-64-1	Acetone		5,475.00	no		
75-09-2	Methylene chloride	1.6	4.28	yes	--	3.7E-07
	METALS					
7440-38-2	Arsenic		0.04	yes		
7440-39-3	Barium		7,300.00	no		
7440-47-3	Chromium		54,750.00	no		
7440-50-8	Copper		1,355.71	no		
7439-92-1	Lead		15.00	no		
7440-02-0	Nickel		730.00	no		
7440-24-6	Strontium		21,900.00	no		
7440-66-6	Zinc	30	10,950.00	no	0.0027	--

Cumulative Risk Ratio **0.0027** **3.7E-07**

blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well
Cumulative Risk Ratio does not include lead

USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224 kb) (revised 05/04/07) located at http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm.

Table J.7.24
Risk Ratio Calculations
AOC 1/7 Well Number E4807
Groundwater Former SADVA

Residential Well E4807

CAS NUMBER	Compound	Exposure Point Concentration (µg/L)	USEPA Region 6 Risk-Based Screening Level (µg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
	VOLATILES					
67-64-1	Acetone		5,475.00	no		
75-09-2	Methylene chloride	1.2	4.28	yes	--	2.8E-07
	METALS					
7440-38-2	Arsenic		0.04	yes		
7440-39-3	Barium		7,300.00	no		
7440-47-3	Chromium	20	54,750.00	no		
7440-50-8	Copper		1,355.71	no		
7439-92-1	Lead		15.00	no		
7440-02-0	Nickel		730.00	no		
7440-24-6	Strontium		21,900.00	no		
7440-66-6	Zinc	30	10,950.00	no	0.0027	--

Cumulative Risk Ratio	**0.0027**	**2.8E-07**

blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well
Cumulative Risk Ratio does not include lead

USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224 kb) (revised 05/04/07) located at http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm.

Table J.7.25
Risk Ratio Calculations
AOC 1/7 Well Number E4808
Groundwater Former SADVA

Residential Well E4808

CAS NUMBER	Compound	Exposure Point Concentration (µg/L)	USEPA Region 6 Risk-Based Screening Level (µg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
	VOLATILES					
67-64-1	Acetone		5,475.00	no		
75-09-2	Methylene chloride	2.3	4.28	yes	--	5.4E-07
	METALS					
7440-38-2	Arsenic		0.04	yes		
7440-39-3	Barium		7,300.00	no		
7440-47-3	Chromium		54,750.00	no		
7440-50-8	Copper		1,355.71	no		
7439-92-1	Lead		15.00	no		
7440-02-0	Nickel		730.00	no		
7440-24-6	Strontium		21,900.00	no		
7440-66-6	Zinc	20	10,950.00	no	0.0018	--

Cumulative Risk Ratio	**0.0018**	**5.4E-07**

blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well
Cumulative Risk Ratio does not include lead

USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224 kb) (revised 05/04/07) located at http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm.

Table J.7.26
Risk Ratio Calculations
AOC 1/7 Well Number E4809
Groundwater Former SADVA

Residential Well E4809

CAS NUMBER	Compound	Exposure Point Concentration (µg/L)	USEPA Region 6 Risk-Based Screening Level (µg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
	VOLATILES					
67-64-1	Acetone		5,475.00	no		
75-09-2	Methylene chloride	1.1	4.28	yes	--	2.6E-07
	METALS					
7440-38-2	Arsenic		0.04	yes		
7440-39-3	Barium		7,300.00	no		
7440-47-3	Chromium		54,750.00	no		
7440-50-8	Copper		1,355.71	no		
7439-92-1	Lead		15.00	no		
7440-02-0	Nickel		730.00	no		
7440-24-6	Strontium		21,900.00	no		
7440-66-6	Zinc	10	10,950.00	no	0.00091	--

Cumulative Risk Ratio	**0.00091**	**2.6E-07**

blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well
Cumulative Risk Ratio does not include lead

USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224 kb) (revised 05/04/07) located at http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm.

Table J.7.27
Risk Ratio Calculations
AOC 1/7 Well Number E4810
Groundwater Former SADVA

Residential Well E4810

CAS NUMBER	Compound	Exposure Point Concentration (µg/L)	USEPA Region 6 Risk-Based Screening Level (µg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
	VOLATILES					
67-64-1	Acetone		5,475.00	no		
75-09-2	Methylene chloride	3.4	4.28	yes	--	8.0E-07
	METALS					
7440-38-2	Arsenic		0.04	yes		
7440-39-3	Barium		7,300.00	no		
7440-47-3	Chromium	20	54,750.00	no	0.00037	--
7440-50-8	Copper		1,355.71	no		
7439-92-1	Lead		15.00	no		
7440-02-0	Nickel		730.00	no		
7440-24-6	Strontium		21,900.00	no		
7440-66-6	Zinc	20	10,950.00	no	0.0018	--

Cumulative Risk Ratio	**0.00219**	**8.0E-07**

blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well
Cumulative Risk Ratio does not include lead

USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224 kb) (revised 05/04/07) located at http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm.

Table J.7.28
Risk Ratio Calculations
AOC 1/7 Well Number E4811
Groundwater Former SADVA

Residential Well E4811

CAS NUMBER	Compound	Exposure Point Concentration (µg/L)	USEPA Region 6 Risk-Based Screening Level (µg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
	VOLATILES					
67-64-1	Acetone	22	5,475.00	no	0.0040	--
75-09-2	Methylene chloride	2.1	4.28	yes	--	4.9E-07
	METALS					
7440-38-2	Arsenic		0.04	yes		
7440-39-3	Barium		7,300.00	no		
7440-47-3	Chromium	10	54,750.00	no	0.00018	--
7440-50-8	Copper		1,355.71	no		
7439-92-1	Lead		15.00	no		
7440-02-0	Nickel		730.00	no		
7440-24-6	Strontium		21,900.00	no		
7440-66-6	Zinc	20	10,950.00	no	0.0018	--

Cumulative Risk Ratio	**0.0060**	**4.9E-07**

blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well
Cumulative Risk Ratio does not include lead

USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224 kb) (revised 05/04/07) located at http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm.

Table J.7.29
Risk Ratio Calculations
AOC 1/7 Well Number E4812
Groundwater Former SADVA

Residential Well E4812

CAS NUMBER	Compound	Exposure Point Concentration (µg/L)	USEPA Region 6 Risk-Based Screening Level (µg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
	VOLATILES					
67-64-1	Acetone		5,475.00	no		
75-09-2	Methylene chloride	1.1	4.28	yes	--	2.6E-07
	METALS					
7440-38-2	Arsenic		0.04	yes		
7440-39-3	Barium		7,300.00	no		
7440-47-3	Chromium		54,750.00	no		
7440-50-8	Copper		1,355.71	no		
7439-92-1	Lead		15.00	no		
7440-02-0	Nickel		730.00	no		
7440-24-6	Strontium		21,900.00	no		
7440-66-6	Zinc	20	10,950.00	no	0.0018	--

Cumulative Risk Ratio **0.0018** **2.6E-07**

blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well
Cumulative Risk Ratio does not include lead

USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224 kb) (revised 05/04/07) located at http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm.

Table J.7.30
Risk Ratio Calculations
AOC 1/7 Well Number E4813
Groundwater Former SADVA

Residential Well E4813

CAS NUMBER	Compound	Exposure Point Concentration (µg/L)	USEPA Region 6 Risk-Based Screening Level (µg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
	VOLATILES					
67-64-1	Acetone	15	5,475.00	no	0.0027	--
75-09-2	Methylene chloride	2.6	4.28	yes	--	6.1E-07
	METALS					
7440-38-2	Arsenic		0.04	yes		
7440-39-3	Barium		7,300.00	no		
7440-47-3	Chromium	50	54,750.00	no	0.00091	--
7440-50-8	Copper		1,355.71	no		
7439-92-1	Lead		15.00	no		
7440-02-0	Nickel		730.00	no		
7440-24-6	Strontium		21,900.00	no		
7440-66-6	Zinc	140	10,950.00	no	0.013	--

Cumulative Risk Ratio	**0.01644**	**6.1E-07**

blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well
Cumulative Risk Ratio does not include lead

USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224 kb) (revised 05/04/07) located at http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm.

Table J.7.31
Risk Ratio Calculations
AOC 1/7 Well Number E4880
Groundwater Former SADVA

Residential Well E4880

CAS NUMBER	Compound	Exposure Point Concentration (µg/L)	USEPA Region 6 Risk-Based Screening Level (µg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
	VOLATILES					
67-64-1	Acetone		5,475.00	no		
75-09-2	Methylene chloride		4.28	yes		
	METALS					
7440-38-2	Arsenic		0.04	yes		
7440-39-3	Barium	63	7,300.00	no	0.0086	--
7440-47-3	Chromium	10	54,750.00	no	0.00018	--
7440-50-8	Copper	29	1,355.71	no	0.021	--
7439-92-1	Lead	49	15.00	no	3.3	--
7440-02-0	Nickel		730.00	no		
7440-24-6	Strontium	23	21,900.00	no	0.0011	--
7440-66-6	Zinc		10,950.00	no		

Cumulative Risk Ratio **0.031** **0.0E+00**

blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well
Cumulative Risk Ratio does not include lead

USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224 kb) (revised 05/04/07) located at http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm.

Table J.7.32
Risk Ratio Calculations
AOC 1/7 Well Number E4794
Groundwater Former SADVA

Residential Well E4794

CAS NUMBER	Compound	Exposure Point Concentration (µg/L)	USEPA Region 6 Risk-Based Screening Level (µg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
	VOLATILES					
67-64-1	Acetone	21	5,475.00	no	0.0038	--
75-09-2	Methylene chloride	1.6	4.28	yes	--	3.7E-07
	METALS					
7440-38-2	Arsenic		0.04	yes		
7440-39-3	Barium		7,300.00	no		
7440-47-3	Chromium	30	54,750.00	no	0.00055	--
7440-50-8	Copper		1,355.71	no		
7439-92-1	Lead		15.00	no		
7440-02-0	Nickel		730.00	no		
7440-24-6	Strontium		21,900.00	no		
7440-66-6	Zinc	30	10,950.00	no	0.0027	--

Cumulative Risk Ratio	**0.0071**	**3.7E-07**

blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well
Cumulative Risk Ratio does not include lead

USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224 kb) (revised 05/04/07) located at http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm.

Table J.7.33
Risk Ratio Calculations
AOC 1/7 Well Number E4795
Groundwater Former SADVA

Residential Well E4795

CAS NUMBER	Compound	Exposure Point Concentration (µg/L)	USEPA Region 6 Risk-Based Screening Level (µg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
	VOLATILES					
67-64-1	Acetone	57	5,475.00	no	0.010	--
75-09-2	Methylene chloride	1.4	4.28	yes	--	3.3E-07
	METALS					
7440-38-2	Arsenic		0.04	yes		
7440-39-3	Barium		7,300.00	no		
7440-47-3	Chromium	20	54,750.00	no	0.00037	--
7440-50-8	Copper		1,355.71	no		
7439-92-1	Lead		15.00	no		
7440-02-0	Nickel		730.00	no		
7440-24-6	Strontium		21,900.00	no		
7440-66-6	Zinc	47	10,950.00	no	0.0043	--

Cumulative Risk Ratio	**0.015**	**3.3E-07**

blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well
Cumulative Risk Ratio does not include lead

USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224 kb) (revised 05/04/07) located at http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm.

Table J.7.34
Risk Ratio Calculations
AOC 1/7 Well Number E4796
Groundwater Former SADVA

Residential Well E4796

CAS NUMBER	Compound	Exposure Point Concentration (µg/L)	USEPA Region 6 Risk-Based Screening Level (µg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
	VOLATILES					
67-64-1	Acetone	42	5,475.00	no	0.0077	--
75-09-2	Methylene chloride	2.4	4.28	yes	--	5.6E-07
	METALS					
7440-38-2	Arsenic		0.04	yes		
7440-39-3	Barium		7,300.00	no		
7440-47-3	Chromium	90	54,750.00	no	0.0016	--
7440-50-8	Copper		1,355.71	no		
7439-92-1	Lead		15.00	no		
7440-02-0	Nickel		730.00	no		
7440-24-6	Strontium		21,900.00	no		
7440-66-6	Zinc	80	10,950.00	no	0.0073	--

Cumulative Risk Ratio	**0.01662**	**5.6E-07**

blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well
Cumulative Risk Ratio does not include lead

USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224 kb) (revised 05/04/07) located at http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm.

Table J.7.35
Risk Ratio Calculations
AOC 1/7 Well Number E5306
Groundwater Former SADVA

Residential Well E5306

CAS NUMBER	Compound	Exposure Point Concentration (µg/L)	USEPA Region 6 Risk-Based Screening Level (µg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
	VOLATILES					
67-64-1	Acetone		5,475.00	no		
75-09-2	Methylene chloride	1.2	4.28	yes	--	2.8E-07
	METALS					
7440-38-2	Arsenic	7.9	0.04	yes	--	1.8E-04
7440-39-3	Barium		7,300.00	no		
7440-47-3	Chromium	30	54,750.00	no	0.00055	--
7440-50-8	Copper		1,355.71	no		
7439-92-1	Lead		15.00	no		
7440-02-0	Nickel		730.00	no		
7440-24-6	Strontium		21,900.00	no		
7440-66-6	Zinc	10	10,950.00	no	0.00091	--

Cumulative Risk Ratio	**0.00146**	**1.8E-04**

blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well
Cumulative Risk Ratio does not include lead

USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224 kb) (revised 05/04/07) located at http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm.

Table J.7.36
Risk Ratio Calculations
AOC 1/7 Well Number E4797
Groundwater Former SADVA

Residential Well E4797

CAS NUMBER	Compound	Exposure Point Concentration (µg/L)	USEPA Region 6 Risk-Based Screening Level (µg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
	VOLATILES					
67-64-1	Acetone	22	5,475.00	no	0.0040	--
75-09-2	Methylene chloride	2.8	4.28	yes	--	6.5E-07
	METALS					
7440-38-2	Arsenic		0.04	yes		
7440-39-3	Barium	73	7,300.00	no	0.010	--
7440-47-3	Chromium		54,750.00	no		
7440-50-8	Copper	107	1,355.71	no	0.079	--
7439-92-1	Lead		15.00	no		
7440-02-0	Nickel		730.00	no		
7440-24-6	Strontium	269	21,900.00	no	0.012	--
7440-66-6	Zinc		10,950.00	no		

Cumulative Risk Ratio	**0.11**	**6.5E-07**

blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well
Cumulative Risk Ratio does not include lead

USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224 kb) (revised 05/04/07) located at http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm.

Table J.7.37
Risk Ratio Calculations
AOC 1/7 Well Number MW-ACE2
Groundwater Former SADVA

Nonresidential Well MW-ACE2

COMPOUND	CAS Number	Exposure Point Concentration (µg/L) [a]	EPC Maximum, Mean or Latest?	USEPA Region 6 Risk-Based Screening Level (µg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
VOLATILES							
2-Butanone	78-93-3			7,100.00	no		
1,1-Dichloroethene	75-35-4	4	max	1,200.00	no	0.0033	--
1,2-Dichloroethane	107-06-2	5	max	0.12	yes	--	4.2E-05
1,2-Dichloroethene (total)	540-59-0	530	latest	n/a		--	--
cis-1,2-Dichloroethene	156-59-2			61	no		
trans-1,2-Dichloroethene	156-60-5			110	no		
Acetone	67-64-1			5,500.00	no		
Benzene	71-43-2	4	max	0.35	yes	--	1.1E-05
Chlorobenzene	108-90-7	2	max	91	no	0.022	--
Methylene chloride	75-09-2			4.3	yes		
Toluene	108-88-3	0.6	max	2,300.00	no	0.00026	--
Trichloroethene	79-01-6	168	mean	0.028	yes	--	6.0E-03
Vinyl chloride	75-01-4	160	latest	0.015	yes	--	1.1E-02
Xylenes (total)	1330-20-7	0.7	max	200	no	0.0035	--
SEMIVOLATILES							
bis(2-Ethylhexyl) phthalate	117-81-7			4.8	yes		
Butyl benzyl phthalate	85-68-7			7,300.00	no		
Carbazole	86-74-8			3.4	yes		
Di-n-butyl phthalate	84-74-2			3,700.00	no		
Diethyl phthalate	84-66-2			29,000.00	no		
Fluoranthene	206-44-0			1,500.00	no		
Pyrene	129-00-0			180	no		
PESTICIDES							
4,4'-DDE	72-55-9			0.2	yes		
4,4'-DDD	72-54-8			0.28	yes		
4,4'-DDT	50-29-3			0.2	yes		
METALS							
Aluminum	7429-90-5			37,000.00	no		
Antimony	7440-36-0			15	no		
Arsenic	7440-38-2	6	max	0.045	yes	--	1.3E-04
Barium	7440-39-3	131	max	7,300.00	no	0.018	--
Beryllium	7440-41-7			73	no		
Cadmium	7440-43-9			18	no		
Chromium	7440-47-3	18	max	54,750.00	no	0.00033	--
Chromium VI	18540-29-9			110	no		
Cobalt	7440-48-4			730	no		
Copper	7440-50-8			1,400.00	no		
Lead	7439-92-1	79	max	15	no	5.3	--
Manganese	7439-96-5			1,700.00	no		
Mercury	7439-97-6			11	no		
Nickel	7440-02-0			730	no		
Selenium	7782-49-2			180	no		
Silver	7440-22-4			180	no		
Strontium	7440-24-6			22,000.00	no		
Thallium	7440-28-0			2.6	no		
Vanadium	7440-62-2			180	no		
Zinc	7440-66-6			11,000.00	no		
				Cumulative Risk Ratio		**0.047**	**1.7E-02**

max is the maximum detected concentration
mean is calculated as the mean of the detected concentrations and 1/2 the detection limit for non-detects
latest is the latest detected concentration
blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well
Cumulative Risk Ratio does not include lead
USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224 kb) (revised 05/04/07) located at http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm.

a - One of the wells used in this analysis had a duplicate sample, and the highest value of the primary sample and the duplicate sample at this well was used for calculations.

Table J.7.38
Risk Ratio Calculations
AOC 1/7 Well Number MW-AMW1
Groundwater Former SADVA

Nonresidential Well MW-AMW1

COMPOUND	CAS Number	Exposure Point Concentration (µg/L)	EPC Maximum, Average or Latest?	USEPA Region 6 Risk-Based Screening Level (µg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
VOLATILES							
2-Butanone	78-93-3			7,100.00	no		
1,1-Dichloroethene	75-35-4			1,200.00	no		
1,2-Dichloroethane	107-06-2	2.2	mean	0.12	yes	--	1.8E-05
1,2-Dichloroethene (total)	540-59-0	99	mean	n/a		--	--
cis-1,2-Dichloroethene	156-59-2	87	max	61	no	1.4	--
trans-1,2-Dichloroethene	156-60-5	14	max	110	no	0.13	--
Acetone	67-64-1			5,500.00	no		
Benzene	71-43-2			0.35	yes		
Chlorobenzene	108-90-7			91	no		
Methylene chloride	75-09-2			4.3	yes		
Toluene	108-88-3			2,300.00	no		
Trichloroethene	79-01-6	2.5	latest	0.028	yes	--	8.9E-05
Vinyl chloride	75-01-4	21	latest	0.015	yes	--	1.4E-03
Xylenes (total)	1330-20-7			200	no		
SEMIVOLATILES							
bis(2-Ethylhexyl) phthalate	117-81-7			4.8	yes		
Butyl benzyl phthalate	85-68-7			7,300.00	no		
Carbazole	86-74-8			3.4	yes		
Di-n-butyl phthalate	84-74-2			3,700.00	no		
Diethyl phthalate	84-66-2			29,000.00	no		
Fluoranthene	206-44-0			1,500.00	no		
Pyrene	129-00-0			180	no		
PESTICIDES							
4,4'-DDE	72-55-9			0.2	yes		
4,4'-DDD	72-54-8			0.28	yes		
4,4'-DDT	50-29-3			0.2	yes		
METALS							
Aluminum	7429-90-5			37,000.00	no		
Antimony	7440-36-0			15	no		
Arsenic	7440-38-2			0.045	yes		
Barium	7440-39-3	44	max	7,300.00	no	0.0060	--
Beryllium	7440-41-7			73	no		
Cadmium	7440-43-9			18	no		
Chromium	7440-47-3			54,750.00	no		
Chromium VI	18540-29-9			110	no		
Cobalt	7440-48-4			730	no		
Copper	7440-50-8			1,400.00	no		
Lead	7439-92-1	2	max	15	no	0.13	--
Manganese	7439-96-5			1,700.00	no		
Mercury	7439-97-6			11	no		
Nickel	7440-02-0			730	no		
Selenium	7782-49-2			180	no		
Silver	7440-22-4			180	no		
Strontium	7440-24-6			22,000.00	no		
Thallium	7440-28-0			2.6	no		
Vanadium	7440-62-2			180	no		
Zinc	7440-66-6			11,000.00	no		

Cumulative Risk Ratio **1.6** **1.5E-03**

max is the maximum detected concentration
mean is calculated as the mean of the detected concentrations and 1/2 the detection limit for non-detects
latest is the latest detected concentration
blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well
Cumulative Risk Ratio does not include lead

USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224 kb) (revised 05/04/07) located at http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm.

Table J.7.39
Risk Ratio Calculations
AOC 1/7 Well Number MW-AMW2
Groundwater Former SADVA

Nonresidential Well MW-AMW2

COMPOUND	CAS Number	Exposure Point Concentration (µg/L) [a]	EPC Maximum, Average or Latest?	USEPA Region 6 Risk-Based Screening Level (µg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
VOLATILES							
2-Butanone	78-93-3	2.3	max	7,100.00	no	0.00032	--
1,1-Dichloroethene	75-35-4			1,200.00	no		
1,2-Dichloroethane	107-06-2			0.12	yes		
1,2-Dichloroethene (total)	540-59-0			n/a			
cis-1,2-Dichloroethene	156-59-2			61	no		
trans-1,2-Dichloroethene	156-60-5			110	no		
Acetone	67-64-1			5,500.00	no		
Benzene	71-43-2			0.35	yes		
Chlorobenzene	108-90-7			91	no		
Methylene chloride	75-09-2			4.3	yes		
Toluene	108-88-3	0.28	max	2,300.00	no	0.00012	--
Trichloroethene	79-01-6			0.028	yes		
Vinyl chloride	75-01-4			0.015	yes		
Xylenes (total)	1330-20-7			200	no		
SEMIVOLATILES							
bis(2-Ethylhexyl) phthalate	117-81-7			4.8	yes		
Butyl benzyl phthalate	85-68-7			7,300.00	no		
Carbazole	86-74-8			3.4	yes		
Di-n-butyl phthalate	84-74-2			3,700.00	no		
Diethyl phthalate	84-66-2			29,000.00	no		
Fluoranthene	206-44-0			1,500.00	no		
Pyrene	129-00-0			180	no		
PESTICIDES							
4,4'-DDE	72-55-9			0.2	yes		
4,4'-DDD	72-54-8			0.28	yes		
4,4'-DDT	50-29-3			0.2	yes		
METALS							
Aluminum	7429-90-5			37,000.00	no		
Antimony	7440-36-0			15	no		
Arsenic	7440-38-2			0.045	yes		
Barium	7440-39-3	69	max	7,300.00	no	0.0095	--
Beryllium	7440-41-7			73	no		
Cadmium	7440-43-9			18	no		
Chromium	7440-47-3	7	max	54,750.00	no	0.00013	--
Chromium VI	18540-29-9			110	no		
Cobalt	7440-48-4			730	no		
Copper	7440-50-8			1,400.00	no		
Lead	7439-92-1	2	max	15	no	0.13	--
Manganese	7439-96-5			1,700.00	no		
Mercury	7439-97-6			11	no		
Nickel	7440-02-0			730	no		
Selenium	7782-49-2			180	no		
Silver	7440-22-4			180	no		
Strontium	7440-24-6			22,000.00	no		
Thallium	7440-28-0			2.6	no		
Vanadium	7440-62-2			180	no		
Zinc	7440-66-6			11,000.00	no		
				Cumulative Risk Ratio		**0.010**	**0.0E+00**

max is the maximum detected concentration
blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well
Cumulative Risk Ratio does not include lead
USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224 kb) (revised

a - the highest value of the primary sample and the duplicate sample at this well is reported.

Table J.7.40
Risk Ratio Calculations
AOC 1/7 Well Number MW-AMW11
Groundwater Former SADVA

Nonresidential Well MW-AMW11 (or AOC1-GW-11R)

COMPOUND	CAS Number	Exposure Point Concentration (µg/L)	EPC Maximum, Average or Latest?	USEPA Region 6 Risk-Based Screening Level (µg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
VOLATILES							
2-Butanone	78-93-3			7,100.00	no		
1,1-Dichloroethene	75-35-4			1,200.00	no		
1,2-Dichloroethane	107-06-2			0.12	yes		
1,2-Dichloroethene (total)	540-59-0			n/a			
cis-1,2-Dichloroethene	156-59-2			61	no		
trans-1,2-Dichloroethene	156-60-5			110	no		
Acetone	67-64-1	802.15	mean	5,500.00	no	0.15	--
Benzene	71-43-2			0.35	yes		
Chlorobenzene	108-90-7			91	no		
Methylene chloride	75-09-2			4.3	yes		
Toluene	108-88-3	25.15	mean	2,300.00	no	0.011	--
Trichloroethene	79-01-6			0.028	yes		
Vinyl chloride	75-01-4			0.015	yes		
Xylenes (total)	1330-20-7			200	no		
SEMIVOLATILES							
bis(2-Ethylhexyl) phthalate	117-81-7	6.8	max	4.8	yes	--	1.4E-06
Butyl benzyl phthalate	85-68-7			7,300.00	no		
Carbazole	86-74-8			3.4	yes		
Di-n-butyl phthalate	84-74-2	5.4	max	3,700.00	no	0.0015	--
Diethyl phthalate	84-66-2			29,000.00	no		
Fluoranthene	206-44-0			1,500.00	no		
Pyrene	129-00-0			180	no		
PESTICIDES							
4,4'-DDE	72-55-9			0.2	yes		
4,4'-DDD	72-54-8			0.28	yes		
4,4'-DDT	50-29-3	0.0039	max	0.2	yes	--	2.0E-08
METALS						--	--
Aluminum	7429-90-5	7330	mean	37,000.00	no	0.20	--
Antimony	7440-36-0	9	mean	15	no	0.60	--
Arsenic	7440-38-2	73.3	mean	0.045	yes	--	1.6E-03
Barium	7440-39-3	236.5	mean	7,300.00	no	0.032	--
Beryllium	7440-41-7	1	mean	73	no	0.014	--
Cadmium	7440-43-9			18	no		
Chromium	7440-47-3	12.15	mean	54,750.00	no	0.00022	--
Chromium VI	18540-29-9			110	no		
Cobalt	7440-48-4	3.35	mean	730	no	0.0046	--
Copper	7440-50-8	19.75	mean	1,400.00	no	0.014	--
Lead	7439-92-1	9	mean	15	no	0.60	--
Manganese	7439-96-5	75	mean	1,700.00	no	0.044	--
Mercury	7439-97-6	0.049	max	11	no	0.0045	--
Nickel	7440-02-0	12.15	mean	730	no	0.017	--
Selenium	7782-49-2	47.85	mean	180	no	0.27	--
Silver	7440-22-4			180	no		
Strontium	7440-24-6			22,000.00	no		
Thallium	7440-28-0			2.6	no		
Vanadium	7440-62-2	34.85	mean	180	no	0.19	--
Zinc	7440-66-6	180.1	mean	11,000.00	no	0.016	--

Cumulative Risk Ratio **1.6** **1.6E-03**

max is the maximum detected concentration
mean is calculated as the mean of the detected concentrations and 1/2 the detection limit for non-detects
blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well
Cumulative Risk Ratio does not include lead

USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224 kb) (revised 05/04/07) located at http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm.

Table J.7.41
Risk Ratio Calculations
AOC 1/7 Well Number AMW-3
Groundwater Former SADVA

Nonresidential Well AMW-3

COMPOUND	CAS Number	Exposure Point Concentration (µg/L)	USEPA Region 6 Risk-Based Screening Level (µg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
VOLATILES						
2-Butanone	78-93-3		7,100.00	no		
1,1-Dichloroethene	75-35-4		1,200.00	no		
1,2-Dichloroethane	107-06-2		0.12	yes		
1,2-Dichloroethene (total)	540-59-0		n/a			
cis-1,2-Dichloroethene	156-59-2		61	no		
trans-1,2-Dichloroethene	156-60-5		110	no		
Acetone	67-64-1		5,500.00	no		
Benzene	71-43-2		0.35	yes		
Chlorobenzene	108-90-7		91	no		
Methylene chloride	75-09-2		4.3	yes		
Toluene	108-88-3		2,300.00	no		
Trichloroethene	79-01-6	0.26	0.028	yes	--	9.3E-06
Vinyl chloride	75-01-4		0.015	yes		
Xylenes (total)	1330-20-7		200	no		
SEMIVOLATILES						
bis(2-Ethylhexyl) phthalate	117-81-7		4.8	yes		
Butyl benzyl phthalate	85-68-7		7,300.00	no		
Carbazole	86-74-8		3.4	yes		
Di-n-butyl phthalate	84-74-2		3,700.00	no		
Diethyl phthalate	84-66-2		29,000.00	no		
Fluoranthene	206-44-0		1,500.00	no		
Pyrene	129-00-0		180	no		
PESTICIDES						
4,4'-DDE	72-55-9		0.2	yes		
4,4'-DDD	72-54-8		0.28	yes		
4,4'-DDT	50-29-3		0.2	yes		
METALS						
Aluminum	7429-90-5		37,000.00	no		
Antimony	7440-36-0		15	no		
Arsenic	7440-38-2		0.045	yes		
Barium	7440-39-3		7,300.00	no		
Beryllium	7440-41-7		73	no		
Cadmium	7440-43-9		18	no		
Chromium	7440-47-3		54,750.00	no		
Chromium VI	18540-29-9		110	no		
Cobalt	7440-48-4		730	no		
Copper	7440-50-8		1,400.00	no		
Lead	7439-92-1		15	no		
Manganese	7439-96-5		1,700.00	no		
Mercury	7439-97-6		11	no		
Nickel	7440-02-0		730	no		
Selenium	7782-49-2		180	no		
Silver	7440-22-4		180	no		
Strontium	7440-24-6		22,000.00	no		
Thallium	7440-28-0		2.6	no		
Vanadium	7440-62-2		180	no		
Zinc	7440-66-6		11,000.00	no		

Cumulative Risk Ratio	**0.0**	**9.3E-06**

blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well
Cumulative Risk Ratio does not include lead

USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224 kb) (revised 05/04/07) located at http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm.

the detected concentration used as EPC

Table J.7.42
Risk Ratio Calculations
AOC 1/7 Well Number AMW-4
Groundwater Former SADVA

Nonresidential Well AMW-4

COMPOUND	CAS Number	Exposure Point Concentration (µg/L)	USEPA Region 6 Risk-Based Screening Level (µg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
VOLATILES						
2-Butanone	78-93-3	2	7,100.00	no	0.00028	--
1,1-Dichloroethene	75-35-4		1,200.00	no		
1,2-Dichloroethane	107-06-2		0.12	yes		
1,2-Dichloroethene (total)	540-59-0		n/a			
cis-1,2-Dichloroethene	156-59-2		61	no		
trans-1,2-Dichloroethene	156-60-5		110	no		
Acetone	67-64-1		5,500.00	no		
Benzene	71-43-2	0.28	0.35	yes	--	8.0E-07
Chlorobenzene	108-90-7		91	no		
Methylene chloride	75-09-2		4.3	yes		
Toluene	108-88-3	0.23	2,300.00	no	0.00010	--
Trichloroethene	79-01-6		0.028	yes		
Vinyl chloride	75-01-4	1	0.015	yes	--	6.7E-05
Xylenes (total)	1330-20-7		200	no		
SEMIVOLATILES						
bis(2-Ethylhexyl) phthalate	117-81-7		4.8	yes		
Butyl benzyl phthalate	85-68-7		7,300.00	no		
Carbazole	86-74-8		3.4	yes		
Di-n-butyl phthalate	84-74-2		3,700.00	no		
Diethyl phthalate	84-66-2		29,000.00	no		
Fluoranthene	206-44-0		1,500.00	no		
Pyrene	129-00-0		180	no		
PESTICIDES						
4,4'-DDE	72-55-9		0.2	yes		
4,4'-DDD	72-54-8		0.28	yes		
4,4'-DDT	50-29-3		0.2	yes		
METALS						
Aluminum	7429-90-5		37,000.00	no		
Antimony	7440-36-0		15	no		
Arsenic	7440-38-2		0.045	yes		
Barium	7440-39-3		7,300.00	no		
Beryllium	7440-41-7		73	no		
Cadmium	7440-43-9		18	no		
Chromium	7440-47-3		54,750.00	no		
Chromium VI	18540-29-9		110	no		
Cobalt	7440-48-4		730	no		
Copper	7440-50-8		1,400.00	no		
Lead	7439-92-1		15			
Manganese	7439-96-5		1,700.00	no		
Mercury	7439-97-6		11	no		
Nickel	7440-02-0		730	no		
Selenium	7782-49-2		180	no		
Silver	7440-22-4		180	no		
Strontium	7440-24-6		22,000.00	no		
Thallium	7440-28-0		2.6	no		
Vanadium	7440-62-2		180	no		
Zinc	7440-66-6		11,000.00	no		
			Cumulative Risk Ratio		**0.00038**	**6.7E-05**

blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well
Cumulative Risk Ratio does not include lead
USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224 kb) (revised 05/04/07) located at http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm.

the detected concentration used as EPC

Table J.7.43
Risk Ratio Calculations
AOC 1/7 Well Number AMW-104
Groundwater Former SADVA

Nonresidential Well AMW-104

COMPOUND	CAS Number	Exposure Point Concentration (µg/L)	USEPA Region 6 Risk-Based Screening Level (µg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
VOLATILES						
2-Butanone	78-93-3		7,100.00	no		
1,1-Dichloroethene	75-35-4		1,200.00	no		
1,2-Dichloroethane	107-06-2		0.12	yes		
1,2-Dichloroethene (total)	540-59-0	1	n/a		--	--
cis-1,2-Dichloroethene	156-59-2		61	no		
trans-1,2-Dichloroethene	156-60-5		110	no		
Acetone	67-64-1		5,500.00	no		
Benzene	71-43-2	0.81	0.35	yes	--	2.3E-06
Chlorobenzene	108-90-7		91	no		
Methylene chloride	75-09-2		4.3	yes		
Toluene	108-88-3		2,300.00	no		
Trichloroethene	79-01-6	0.32	0.028	yes	--	1.1E-05
Vinyl chloride	75-01-4	3.4	0.015	yes	--	2.3E-04
Xylenes (total)	1330-20-7		200	no		
SEMIVOLATILES						
bis(2-Ethylhexyl) phthalate	117-81-7		4.8	yes		
Butyl benzyl phthalate	85-68-7		7,300.00	no		
Carbazole	86-74-8		3.4	yes		
Di-n-butyl phthalate	84-74-2		3,700.00	no		
Diethyl phthalate	84-66-2		29,000.00	no		
Fluoranthene	206-44-0		1,500.00	no		
Pyrene	129-00-0		180	no		
PESTICIDES						
4,4'-DDE	72-55-9		0.2	yes		
4,4'-DDD	72-54-8		0.28	yes		
4,4'-DDT	50-29-3		0.2	yes		
METALS						
Aluminum	7429-90-5		37,000.00	no		
Antimony	7440-36-0		15	no		
Arsenic	7440-38-2		0.045	yes		
Barium	7440-39-3		7,300.00	no		
Beryllium	7440-41-7		73	no		
Cadmium	7440-43-9		18	no		
Chromium	7440-47-3		54,750.00	no		
Chromium VI	18540-29-9		110	no		
Cobalt	7440-48-4		730	no		
Copper	7440-50-8		1,400.00	no		
Lead	7439-92-1		15	no		
Manganese	7439-96-5		1,700.00	no		
Mercury	7439-97-6		11	no		
Nickel	7440-02-0		730	no		
Selenium	7782-49-2		180	no		
Silver	7440-22-4		180	no		
Strontium	7440-24-6		22,000.00	no		
Thallium	7440-28-0		2.6	no		
Vanadium	7440-62-2		180	no		
Zinc	7440-66-6		11,000.00	no		

Cumulative Risk Ratio **0.0** **2.4E-04**

blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well
Cumulative Risk Ratio does not include lead
USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224 kb) (revised 05/04/07) located at http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm.

the detected concentration used as EPC

Table J.7.44
Risk Ratio Calculations
AOC 1/7 Well Number SD-GW01-AOC7
Groundwater Former SADVA

Nonresidential Well SD-GW01-AOC7

COMPOUND	CAS Number	Exposure Point Concentration (µg/L) [a]	USEPA Region 6 Risk-Based Screening Level (µg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
VOLATILES						
2-Butanone	78-93-3		7,100.00	no		
1,1-Dichloroethene	75-35-4		1,200.00	no		
1,2-Dichloroethane	107-06-2		0.12	yes		
1,2-Dichloroethene (total)	540-59-0		n/a			
cis-1,2-Dichloroethene	156-59-2		61	no		
trans-1,2-Dichloroethene	156-60-5		110	no		
Acetone	67-64-1		5,500.00	no		
Benzene	71-43-2		0.35	yes		
Chlorobenzene	108-90-7		91	no		
Methylene chloride	75-09-2		4.3	yes		
Toluene	108-88-3		2,300.00	no		
Trichloroethene	79-01-6		0.028	yes		
Vinyl chloride	75-01-4		0.015	yes		
Xylenes (total)	1330-20-7		200	no		
SEMIVOLATILES						
bis(2-Ethylhexyl) phthalate	117-81-7	2	4.8	yes	--	4.2E-07
Butyl benzyl phthalate	85-68-7		7,300.00	no		
Carbazole	86-74-8		3.4	yes		
Di-n-butyl phthalate	84-74-2		3,700.00	no		
Diethyl phthalate	84-66-2		29,000.00	no		
Fluoranthene	206-44-0		1,500.00	no		
Pyrene	129-00-0		180	no		
PESTICIDES						
4,4'-DDE	72-55-9		0.2	yes		
4,4'-DDD	72-54-8		0.28	yes		
4,4'-DDT	50-29-3		0.2	yes		
METALS						
Aluminum	7429-90-5	2	37,000.00	no	0.000054	--
Antimony	7440-36-0		15	no		
Arsenic	7440-38-2		0.045	yes		
Barium	7440-39-3	2	7,300.00	no	0.00027	--
Beryllium	7440-41-7	2	73	no	0.027	--
Cadmium	7440-43-9		18	no		
Chromium	7440-47-3		54,750.00	no		
Chromium VI	18540-29-9		110	no		
Cobalt	7440-48-4		730	no		
Copper	7440-50-8		1,400.00	no		
Lead	7439-92-1		15	no		
Manganese	7439-96-5	2	1,700.00	no	0.0012	--
Mercury	7439-97-6		11	no		
Nickel	7440-02-0		730	no		
Selenium	7782-49-2		180	no		
Silver	7440-22-4	2	180	no	0.011	--
Strontium	7440-24-6		22,000.00	no		
Thallium	7440-28-0		2.6	no		
Vanadium	7440-62-2		180	no		
Zinc	7440-66-6	2	11,000.00	no	0.00018	--

Cumulative Risk Ratio **0.040** **4.2E-07**

blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well
Cumulative Risk Ratio does not include lead

USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224 kb) (revised 05/04/07) located at http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm.

a - One of the wells used in this analysis had a duplicate sample, and the highest value of the primary sample and the duplicate sample at this well was used for calculations.

the detected concentration used as EPC

Table J.7.45
Risk Ratio Calculations
AOC 1/7 Well Number SD-GW03-AOC7
Groundwater Former SADVA

Nonresidential Well SD-GW03-AOC7

COMPOUND	CAS Number	Exposure Point Concentration (µg/L)	EPC Maximum, Average or Latest?	USEPA Region 6 Risk-Based Screening Level (µg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
VOLATILES							
2-Butanone	78-93-3			7,100.00	no		
1,1-Dichloroethene	75-35-4			1,200.00	no		
1,2-Dichloroethane	107-06-2			0.12	yes		
1,2-Dichloroethene (total)	540-59-0			n/a			
cis-1,2-Dichloroethene	156-59-2			61	no		
trans-1,2-Dichloroethene	156-60-5			110	no		
Acetone	67-64-1			5,500.00	no		
Benzene	71-43-2			0.35	yes		
Chlorobenzene	108-90-7			91	no		
Methylene chloride	75-09-2			4.3	yes		
Toluene	108-88-3			2,300.00	no		
Trichloroethene	79-01-6			0.028	yes		
Vinyl chloride	75-01-4			0.015	yes		
Xylenes (total)	1330-20-7			200	no		
SEMIVOLATILES							
bis(2-Ethylhexyl) phthalate	117-81-7	7.6	max	4.8	yes	--	1.6E-06
Butyl benzyl phthalate	85-68-7			7,300.00	no		
Carbazole	86-74-8			3.4	yes		
Di-n-butyl phthalate	84-74-2			3,700.00	no		
Diethyl phthalate	84-66-2			29,000.00	no		
Fluoranthene	206-44-0			1,500.00	no		
Pyrene	129-00-0			180	no		
PESTICIDES							
4,4'-DDE	72-55-9			0.2	yes		
4,4'-DDD	72-54-8			0.28	yes		
4,4'-DDT	50-29-3			0.2	yes		
METALS							
Aluminum	7429-90-5	27.4	max	37,000.00	no	0.00074	--
Antimony	7440-36-0			15	no		
Arsenic	7440-38-2			0.045	yes		
Barium	7440-39-3	10.4	max	7,300.00	no	0.0014	--
Beryllium	7440-41-7			73	no		
Cadmium	7440-43-9			18	no		
Chromium	7440-47-3			54,750.00	no		
Chromium VI	18540-29-9			110	no		
Cobalt	7440-48-4			730	no		
Copper	7440-50-8	2	max	1,400.00	no	0.0014	--
Lead	7439-92-1			15	no		
Manganese	7439-96-5	59	max	1,700.00	no	0.035	--
Mercury	7439-97-6			11	no		
Nickel	7440-02-0			730	no		
Selenium	7782-49-2			180	no		
Silver	7440-22-4			180	no		
Strontium	7440-24-6			22,000.00	no		
Thallium	7440-28-0			2.6	no		
Vanadium	7440-62-2	1.1	max	180	no	0.0061	--
Zinc	7440-66-6	12.4	max	11,000.00	no	0.0011	--

Cumulative Risk Ratio	**0.046**	**1.6E-06**

max is the maximum detected concentration
blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well
Cumulative Risk Ratio does not include lead
USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224 kb) (revised

Table J.7.46
Risk Ratio Calculations
AOC 1/7 Well Number MW-ACE4
Groundwater Former SADVA

Nonresidential Well MW-ACE4

COMPOUND	CAS Number	Exposure Point Concentration (µg/L)	USEPA Region 6 Risk-Based Screening Level (µg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
VOLATILES						
2-Butanone	78-93-3		7,100.00	no		
1,1-Dichloroethene	75-35-4		1,200.00	no		
1,2-Dichloroethane	107-06-2		0.12	yes		
1,2-Dichloroethene (total)	540-59-0		n/a			
cis-1,2-Dichloroethene	156-59-2		61	no		
trans-1,2-Dichloroethene	156-60-5		110	no		
Acetone	67-64-1		5,500.00	no		
Benzene	71-43-2		0.35	yes		
Chlorobenzene	108-90-7		91	no		
Methylene chloride	75-09-2		4.3	yes		
Toluene	108-88-3		2,300.00	no		
Trichloroethene	79-01-6		0.028	yes		
Vinyl chloride	75-01-4		0.015	yes		
Xylenes (total)	1330-20-7		200	no		
SEMIVOLATILES						
bis(2-Ethylhexyl) phthalate	117-81-7		4.8	yes		
Butyl benzyl phthalate	85-68-7		7,300.00	no		
Carbazole	86-74-8		3.4	yes		
Di-n-butyl phthalate	84-74-2		3,700.00	no		
Diethyl phthalate	84-66-2		29,000.00	no		
Fluoranthene	206-44-0		1,500.00	no		
Pyrene	129-00-0		180	no		
PESTICIDES						
4,4'-DDE	72-55-9		0.2	yes		
4,4'-DDD	72-54-8		0.28	yes		
4,4'-DDT	50-29-3		0.2	yes		
METALS						
Aluminum	7429-90-5		37,000.00	no		
Antimony	7440-36-0		15	no		
Arsenic	7440-38-2	10	0.045	yes	--	2.2E-04
Barium	7440-39-3	104	7,300.00	no	0.014	--
Beryllium	7440-41-7		73	no		
Cadmium	7440-43-9		18	no		
Chromium	7440-47-3	22	54,750.00	no	0.00040	--
Chromium VI	18540-29-9		110	no		
Cobalt	7440-48-4		730	no		
Copper	7440-50-8		1,400.00	no		
Lead	7439-92-1		15	no		
Manganese	7439-96-5		1,700.00	no		
Mercury	7439-97-6		11	no		
Nickel	7440-02-0		730	no		
Selenium	7782-49-2		180	no		
Silver	7440-22-4		180	no		
Strontium	7440-24-6		22,000.00	no		
Thallium	7440-28-0		2.6	no		
Vanadium	7440-62-2		180	no		
Zinc	7440-66-6		11,000.00	no		
			Cumulative Risk Ratio		**0.015**	**2.2E-04**

blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well
Cumulative Risk Ratio does not include lead

USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224 kb) (revised 05/04/07) located at http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm.

the detected concentration used as EPC

Table J.7.47
Risk Ratio Calculations
AOC 1/7 Well Number MW-ACE3
Groundwater Former SADVA

Nonresidential Well MW-ACE3

COMPOUND	CAS Number	Exposure Point Concentration (µg/L) [a]	USEPA Region 6 Risk-Based Screening Level (µg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
VOLATILES						
2-Butanone	78-93-3		7,100.00	no		
1,1-Dichloroethene	75-35-4		1,200.00	no		
1,2-Dichloroethane	107-06-2		0.12	yes		
1,2-Dichloroethene (total)	540-59-0		n/a			
cis-1,2-Dichloroethene	156-59-2		61	no		
trans-1,2-Dichloroethene	156-60-5		110	no		
Acetone	67-64-1		5,500.00	no		
Benzene	71-43-2		0.35	yes		
Chlorobenzene	108-90-7		91	no		
Methylene chloride	75-09-2		4.3	yes		
Toluene	108-88-3		2,300.00	no		
Trichloroethene	79-01-6		0.028	yes		
Vinyl chloride	75-01-4		0.015	yes		
Xylenes (total)	1330-20-7		200	no		
SEMIVOLATILES						
bis(2-Ethylhexyl) phthalate	117-81-7		4.8	yes		
Butyl benzyl phthalate	85-68-7		7,300.00	no		
Carbazole	86-74-8		3.4	yes		
Di-n-butyl phthalate	84-74-2		3,700.00	no		
Diethyl phthalate	84-66-2		29,000.00	no		
Fluoranthene	206-44-0		1,500.00	no		
Pyrene	129-00-0		180	no		
PESTICIDES						
4,4'-DDE	72-55-9		0.2	yes		
4,4'-DDD	72-54-8		0.28	yes		
4,4'-DDT	50-29-3		0.2	yes		
METALS						
Aluminum	7429-90-5		37,000.00	no		
Antimony	7440-36-0		15	no		
Arsenic	7440-38-2	5	0.045	yes	--	1.1E-04
Barium	7440-39-3	42	7,300.00	no	0.0058	--
Beryllium	7440-41-7		73	no		
Cadmium	7440-43-9		18	no		
Chromium	7440-47-3	17	54,750.00	no	0.00031	--
Chromium VI	18540-29-9		110	no		
Cobalt	7440-48-4		730	no		
Copper	7440-50-8		1,400.00	no		
Lead	7439-92-1		15	no		
Manganese	7439-96-5		1,700.00	no		
Mercury	7439-97-6		11	no		
Nickel	7440-02-0		730	no		
Selenium	7782-49-2		180	no		
Silver	7440-22-4		180	no		
Strontium	7440-24-6		22,000.00	no		
Thallium	7440-28-0		2.6	no		
Vanadium	7440-62-2		180	no		
Zinc	7440-66-6		11,000.00	no		
			Cumulative Risk Ratio		**0.0061**	**1.1E-04**

blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well
Cumulative Risk Ratio does not include lead

USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224 kb) (revised 05/04/07) located at http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm.

a - the highest value of the primary sample and the duplicate sample at this well is reported.

the detected concentration used as EPC

Table J.7.48
Risk Ratio Calculations
AOC 1/7 Well Number MW-2-2
Groundwater Former SADVA

Nonresidential Well MW2-2

COMPOUND	CAS Number	Exposure Point Concentration (µg/L)	USEPA Region 6 Risk-Based Screening Level (µg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
VOLATILES						
2-Butanone	78-93-3		7,100.00	no		
1,1-Dichloroethene	75-35-4		1,200.00	no		
1,2-Dichloroethane	107-06-2		0.12	yes		
1,2-Dichloroethene (total)	540-59-0		n/a			
cis-1,2-Dichloroethene	156-59-2		61	no		
trans-1,2-Dichloroethene	156-60-5		110	no		
Acetone	67-64-1		5,500.00	no		
Benzene	71-43-2		0.35	yes		
Chlorobenzene	108-90-7		91	no		
Methylene chloride	75-09-2		4.3	yes		
Toluene	108-88-3		2,300.00	no		
Trichloroethene	79-01-6		0.028	yes		
Vinyl chloride	75-01-4		0.015	yes		
Xylenes (total)	1330-20-7		200	no		
SEMIVOLATILES						
bis(2-Ethylhexyl) phthalate	117-81-7		4.8	yes		
Butyl benzyl phthalate	85-68-7		7,300.00	no		
Carbazole	86-74-8		3.4	yes		
Di-n-butyl phthalate	84-74-2		3,700.00	no		
Diethyl phthalate	84-66-2		29,000.00	no		
Fluoranthene	206-44-0		1,500.00	no		
Pyrene	129-00-0		180	no		
PESTICIDES						
4,4'-DDE	72-55-9		0.2	yes		
4,4'-DDD	72-54-8		0.28	yes		
4,4'-DDT	50-29-3		0.2	yes		
METALS						
Aluminum	7429-90-5		37,000.00	no		
Antimony	7440-36-0		15	no		
Arsenic	7440-38-2	6	0.045	yes	--	1.3E-04
Barium	7440-39-3	79	7,300.00	no	0.011	--
Beryllium	7440-41-7		73	no		
Cadmium	7440-43-9		18	no		
Chromium	7440-47-3	18	54,750.00	no	0.00033	--
Chromium VI	18540-29-9		110	no		
Cobalt	7440-48-4		730	no		
Copper	7440-50-8		1,400.00	no		
Lead	7439-92-1		15	no		
Manganese	7439-96-5		1,700.00	no		
Mercury	7439-97-6		11	no		
Nickel	7440-02-0		730	no		
Selenium	7782-49-2		180	no		
Silver	7440-22-4		180	no		
Strontium	7440-24-6		22,000.00	no		
Thallium	7440-28-0		2.6	no		
Vanadium	7440-62-2		180	no		
Zinc	7440-66-6		11,000.00	no		

Cumulative Risk Ratio **0.011** **1.3E-04**

blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well
Cumulative Risk Ratio does not include lead

USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224 kb) (revised 05/04/07) located at http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm.

the detected concentration used as EPC

Table J.7.49
Risk Ratio Calculations
AOC 1/7 Well Number MW-ACE5
Groundwater Former SADVA

Nonresidential Well MW-ACE5

COMPOUND	CAS Number	Exposure Point Concentration (µg/L)	USEPA Region 6 Risk-Based Screening Level (µg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
VOLATILES						
2-Butanone	78-93-3		7,100.00	no		
1,1-Dichloroethene	75-35-4		1,200.00	no		
1,2-Dichloroethane	107-06-2		0.12	yes		
1,2-Dichloroethene (total)	540-59-0		n/a			
cis-1,2-Dichloroethene	156-59-2		61	no		
trans-1,2-Dichloroethene	156-60-5		110	no		
Acetone	67-64-1		5,500.00	no		
Benzene	71-43-2		0.35	yes		
Chlorobenzene	108-90-7		91	no		
Methylene chloride	75-09-2		4.3	yes		
Toluene	108-88-3		2,300.00	no		
Trichloroethene	79-01-6		0.028	yes		
Vinyl chloride	75-01-4		0.015	yes		
Xylenes (total)	1330-20-7		200	no		
SEMIVOLATILES						
bis(2-Ethylhexyl) phthalate	117-81-7		4.8	yes		
Butyl benzyl phthalate	85-68-7		7,300.00	no		
Carbazole	86-74-8		3.4	yes		
Di-n-butyl phthalate	84-74-2		3,700.00	no		
Diethyl phthalate	84-66-2		29,000.00	no		
Fluoranthene	206-44-0		1,500.00	no		
Pyrene	129-00-0		180	no		
PESTICIDES						
4,4'-DDE	72-55-9		0.2	yes		
4,4'-DDD	72-54-8		0.28	yes		
4,4'-DDT	50-29-3		0.2	yes		
METALS						
Aluminum	7429-90-5		37,000.00	no		
Antimony	7440-36-0		15	no		
Arsenic	7440-38-2		0.045	yes		
Barium	7440-39-3	13	7,300.00	no	0.0018	--
Beryllium	7440-41-7		73	no		
Cadmium	7440-43-9		18	no		
Chromium	7440-47-3		54,750.00	no		
Chromium VI	18540-29-9		110	no		
Cobalt	7440-48-4		730	no		
Copper	7440-50-8		1,400.00	no		
Lead	7439-92-1		15			
Manganese	7439-96-5		1,700.00	no		
Mercury	7439-97-6		11	no		
Nickel	7440-02-0		730	no		
Selenium	7782-49-2		180	no		
Silver	7440-22-4		180	no		
Strontium	7440-24-6		22,000.00	no		
Thallium	7440-28-0		2.6	no		
Vanadium	7440-62-2		180	no		
Zinc	7440-66-6		11,000.00	no		
			Cumulative Risk Ratio		**0.0018**	**0.0E+00**

blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well
Cumulative Risk Ratio does not include lead

USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224 kb) (revised 05/04/07) located at http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm.

the detected concentration used as EPC

Table J.7.50
Risk Ratio Calculations
AOC 1/7 Well Number MW-2BMW9
Groundwater Former SADVA

Nonresidential Well MW-2BMW9

COMPOUND	CAS Number	Exposure Point Concentration (µg/L)	USEPA Region 6 Risk-Based Screening Level (µg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
VOLATILES						
2-Butanone	78-93-3		7,100.00	no		
1,1-Dichloroethene	75-35-4		1,200.00	no		
1,2-Dichloroethane	107-06-2		0.12	yes		
1,2-Dichloroethene (total)	540-59-0		n/a			
cis-1,2-Dichloroethene	156-59-2		61	no		
trans-1,2-Dichloroethene	156-60-5		110	no		
Acetone	67-64-1		5,500.00	no		
Benzene	71-43-2		0.35	yes		
Chlorobenzene	108-90-7		91	no		
Methylene chloride	75-09-2		4.3	yes		
Toluene	108-88-3		2,300.00	no		
Trichloroethene	79-01-6		0.028	yes		
Vinyl chloride	75-01-4		0.015	yes		
Xylenes (total)	1330-20-7		200	no		
SEMIVOLATILES						
bis(2-Ethylhexyl) phthalate	117-81-7		4.8	yes		
Butyl benzyl phthalate	85-68-7		7,300.00	no		
Carbazole	86-74-8		3.4	yes		
Di-n-butyl phthalate	84-74-2		3,700.00	no		
Diethyl phthalate	84-66-2		29,000.00	no		
Fluoranthene	206-44-0		1,500.00	no		
Pyrene	129-00-0		180	no		
PESTICIDES						
4,4'-DDE	72-55-9		0.2	yes		
4,4'-DDD	72-54-8		0.28	yes		
4,4'-DDT	50-29-3		0.2	yes		
METALS						
Aluminum	7429-90-5		37,000.00	no		
Antimony	7440-36-0		15	no		
Arsenic	7440-38-2		0.045	yes		
Barium	7440-39-3	28	7,300.00	no	0.0038	--
Beryllium	7440-41-7		73	no		
Cadmium	7440-43-9		18	no		
Chromium	7440-47-3		54,750.00	no		
Chromium VI	18540-29-9		110	no		
Cobalt	7440-48-4		730	no		
Copper	7440-50-8		1,400.00	no		
Lead	7439-92-1		15	no		
Manganese	7439-96-5		1,700.00	no		
Mercury	7439-97-6		11	no		
Nickel	7440-02-0		730	no		
Selenium	7782-49-2		180	no		
Silver	7440-22-4		180	no		
Strontium	7440-24-6		22,000.00	no		
Thallium	7440-28-0		2.6	no		
Vanadium	7440-62-2		180	no		
Zinc	7440-66-6		11,000.00	no		
			Cumulative Risk Ratio		**0.0038**	**0.0E+00**

blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well
Cumulative Risk Ratio does not include lead

USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224 kb) (revised 05/04/07) located at http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm.

the detected concentration used as EPC

Table J.7.51
Risk Ratio Calculations
AOC 1/7 Well Number MW-2AMW6
Groundwater Former SADVA

Nonresidential Well MW-2AMW6

COMPOUND	CAS Number	Exposure Point Concentration (µg/L)	USEPA Region 6 Risk-Based Screening Level (µg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
VOLATILES						
2-Butanone	78-93-3		7,100.00	no		
1,1-Dichloroethene	75-35-4		1,200.00	no		
1,2-Dichloroethane	107-06-2		0.12	yes		
1,2-Dichloroethene (total)	540-59-0		n/a			
cis-1,2-Dichloroethene	156-59-2		61	no		
trans-1,2-Dichloroethene	156-60-5		110	no		
Acetone	67-64-1		5,500.00	no		
Benzene	71-43-2		0.35	yes		
Chlorobenzene	108-90-7		91	no		
Methylene chloride	75-09-2		4.3	yes		
Toluene	108-88-3		2,300.00	no		
Trichloroethene	79-01-6		0.028	yes		
Vinyl chloride	75-01-4		0.015	yes		
Xylenes (total)	1330-20-7		200	no		
SEMIVOLATILES						
bis(2-Ethylhexyl) phthalate	117-81-7		4.8	yes		
Butyl benzyl phthalate	85-68-7		7,300.00	no		
Carbazole	86-74-8		3.4	yes		
Di-n-butyl phthalate	84-74-2		3,700.00	no		
Diethyl phthalate	84-66-2		29,000.00	no		
Fluoranthene	206-44-0		1,500.00	no		
Pyrene	129-00-0		180	no		
PESTICIDES						
4,4'-DDE	72-55-9		0.2	yes		
4,4'-DDD	72-54-8		0.28	yes		
4,4'-DDT	50-29-3		0.2	yes		
METALS						
Aluminum	7429-90-5		37,000.00	no		
Antimony	7440-36-0		15	no		
Arsenic	7440-38-2		0.045	yes		
Barium	7440-39-3	14	7,300.00	no	0.0019	--
Beryllium	7440-41-7		73	no		
Cadmium	7440-43-9		18	no		
Chromium	7440-47-3		54,750.00	no		
Chromium VI	18540-29-9		110	no		
Cobalt	7440-48-4		730	no		
Copper	7440-50-8		1,400.00	no		
Lead	7439-92-1		15	no		
Manganese	7439-96-5		1,700.00	no		
Mercury	7439-97-6		11	no		
Nickel	7440-02-0		730	no		
Selenium	7782-49-2		180	no		
Silver	7440-22-4		180	no		
Strontium	7440-24-6		22,000.00	no		
Thallium	7440-28-0		2.6	no		
Vanadium	7440-62-2		180	no		
Zinc	7440-66-6		11,000.00	no		

Cumulative Risk Ratio **0.0019** **0.0E+00**

blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well

Cumulative Risk Ratio does not include lead

USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224 kb) (revised 05/04/07) located at http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm.

the detected concentration used as EPC

Table J.7.52
Risk Ratio Calculations
AOC 1/7 Well Number MW-2AMW8
Groundwater Former SADVA

Nonresidential Well MW-2AMW8

COMPOUND	CAS Number	Exposure Point Concentration (µg/L)	USEPA Region 6 Risk-Based Screening Level (µg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
VOLATILES						
2-Butanone	78-93-3		7,100.00	no		
1,1-Dichloroethene	75-35-4		1,200.00	no		
1,2-Dichloroethane	107-06-2		0.12	yes		
1,2-Dichloroethene (total)	540-59-0		n/a			
cis-1,2-Dichloroethene	156-59-2		61	no		
trans-1,2-Dichloroethene	156-60-5		110	no		
Acetone	67-64-1		5,500.00	no		
Benzene	71-43-2		0.35	yes		
Chlorobenzene	108-90-7		91	no		
Methylene chloride	75-09-2		4.3	yes		
Toluene	108-88-3		2,300.00	no		
Trichloroethene	79-01-6		0.028	yes		
Vinyl chloride	75-01-4		0.015	yes		
Xylenes (total)	1330-20-7		200	no		
SEMIVOLATILES						
bis(2-Ethylhexyl) phthalate	117-81-7		4.8	yes		
Butyl benzyl phthalate	85-68-7		7,300.00	no		
Carbazole	86-74-8		3.4	yes		
Di-n-butyl phthalate	84-74-2		3,700.00	no		
Diethyl phthalate	84-66-2		29,000.00	no		
Fluoranthene	206-44-0		1,500.00	no		
Pyrene	129-00-0		180	no		
PESTICIDES						
4,4'-DDE	72-55-9		0.2	yes		
4,4'-DDD	72-54-8		0.28	yes		
4,4'-DDT	50-29-3		0.2	yes		
METALS						
Aluminum	7429-90-5		37,000.00	no		
Antimony	7440-36-0		15	no		
Arsenic	7440-38-2	82	0.045	yes	--	1.8E-03
Barium	7440-39-3	51	7,300.00	no	0.0070	--
Beryllium	7440-41-7		73	no		
Cadmium	7440-43-9		18	no		
Chromium	7440-47-3	50	54,750.00	no	0.00091	--
Chromium VI	18540-29-9		110	no		
Cobalt	7440-48-4		730	no		
Copper	7440-50-8		1,400.00	no		
Lead	7439-92-1		15	no		
Manganese	7439-96-5		1,700.00	no		
Mercury	7439-97-6		11	no		
Nickel	7440-02-0		730	no		
Selenium	7782-49-2		180	no		
Silver	7440-22-4		180	no		
Strontium	7440-24-6		22,000.00	no		
Thallium	7440-28-0		2.6	no		
Vanadium	7440-62-2		180	no		
Zinc	7440-66-6		11,000.00	no		

Cumulative Risk Ratio **0.0079** **1.8E-03**

blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well
Cumulative Risk Ratio does not include lead

USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224 kb) (revised 05/04/07) located at http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm.

the detected concentration used as EPC

Table J.7.53
Risk Ratio Calculations
AOC 1/7 Well Number MW-2AMW3
Groundwater Former SADVA

Nonresidential Well MW-2AMW3

COMPOUND	CAS Number	Exposure Point Concentration (µg/L)	USEPA Region 6 Risk-Based Screening Level (µg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
VOLATILES						
2-Butanone	78-93-3		7,100.00	no		
1,1-Dichloroethene	75-35-4		1,200.00	no		
1,2-Dichloroethane	107-06-2		0.12	yes		
1,2-Dichloroethene (total)	540-59-0		n/a			
cis-1,2-Dichloroethene	156-59-2		61	no		
trans-1,2-Dichloroethene	156-60-5		110	no		
Acetone	67-64-1		5,500.00	no		
Benzene	71-43-2		0.35	yes		
Chlorobenzene	108-90-7		91	no		
Methylene chloride	75-09-2		4.3	yes		
Toluene	108-88-3		2,300.00	no		
Trichloroethene	79-01-6		0.028	yes		
Vinyl chloride	75-01-4		0.015	yes		
Xylenes (total)	1330-20-7		200	no		
SEMIVOLATILES						
bis(2-Ethylhexyl) phthalate	117-81-7		4.8	yes		
Butyl benzyl phthalate	85-68-7		7,300.00	no		
Carbazole	86-74-8		3.4	yes		
Di-n-butyl phthalate	84-74-2		3,700.00	no		
Diethyl phthalate	84-66-2		29,000.00	no		
Fluoranthene	206-44-0		1,500.00	no		
Pyrene	129-00-0		180	no		
PESTICIDES						
4,4'-DDE	72-55-9		0.2	yes		
4,4'-DDD	72-54-8		0.28	yes		
4,4'-DDT	50-29-3		0.2	yes		
METALS						
Aluminum	7429-90-5		37,000.00	no		
Antimony	7440-36-0		15	no		
Arsenic	7440-38-2	5	0.045	yes	--	1.1E-04
Barium	7440-39-3	107	7,300.00	no	0.015	--
Beryllium	7440-41-7		73	no		
Cadmium	7440-43-9		18	no		
Chromium	7440-47-3	34	54,750.00	no	0.00062	--
Chromium VI	18540-29-9		110	no		
Cobalt	7440-48-4		730	no		
Copper	7440-50-8		1,400.00	no		
Lead	7439-92-1	13	15	no	0.87	--
Manganese	7439-96-5		1,700.00	no		
Mercury	7439-97-6		11	no		
Nickel	7440-02-0		730	no		
Selenium	7782-49-2		180	no		
Silver	7440-22-4		180	no		
Strontium	7440-24-6		22,000.00	no		
Thallium	7440-28-0		2.6	no		
Vanadium	7440-62-2		180	no		
Zinc	7440-66-6		11,000.00	no		

Cumulative Risk Ratio	**0.015**	**1.1E-04**

blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well
Cumulative Risk Ratio does not include lead
USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224

the detected concentration used as EPC

Table J.7.54
Risk Ratio Calculations
AOC 1/7 Well Number MW-1
Groundwater Former SADVA

Nonresidential Well MW-1

COMPOUND	CAS Number	Exposure Point Concentration (µg/L)	USEPA Region 6 Risk-Based Screening Level (µg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
VOLATILES						
2-Butanone	78-93-3		7,100.00	no		
1,1-Dichloroethene	75-35-4		1,200.00	no		
1,2-Dichloroethane	107-06-2		0.12	yes		
1,2-Dichloroethene (total)**	540-59-0		n/a			
cis-1,2-Dichloroethene	156-59-2		61	no		
trans-1,2-Dichloroethene	156-60-5		110	no		
Acetone	67-64-1		5,500.00	no		
Benzene	71-43-2		0.35	yes		
Chlorobenzene	108-90-7		91	no		
Methylene chloride	75-09-2		4.3	yes		
Toluene	108-88-3		2,300.00	no		
Trichloroethene	79-01-6		0.028	yes		
Vinyl chloride	75-01-4		0.015	yes		
Xylenes (total)***	1330-20-7		200	no		
SEMIVOLATILES						
bis(2-Ethylhexyl) phthalate	117-81-7		4.8	yes		
Butyl benzyl phthalate	85-68-7		7,300.00	no		
Carbazole	86-74-8		3.4	yes		
Di-n-butyl phthalate	84-74-2		3,700.00	no		
Diethyl phthalate	84-66-2		29,000.00	no		
Fluoranthene	206-44-0		1,500.00	no		
Pyrene	129-00-0		180	no		
PESTICIDES						
4,4'-DDE	72-55-9		0.2	yes		
4,4'-DDD	72-54-8		0.28	yes		
4,4'-DDT	50-29-3		0.2	yes		
METALS						
Aluminum	7429-90-5		37,000.00	no		
Antimony	7440-36-0		15	no		
Arsenic	7440-38-2	6.6	0.045	yes	--	1.5E-04
Barium	7440-39-3	82	7,300.00	no	0.011	--
Beryllium	7440-41-7		73	no		
Cadmium	7440-43-9		18	no		
Chromium	7440-47-3	19	54,750.00	no	0.00035	--
Chromium VI	18540-29-9		110	no		
Cobalt	7440-48-4		730	no		
Copper	7440-50-8		1,400.00	no		
Lead	7439-92-1	14	15	no	0.93	--
Manganese	7439-96-5		1,700.00	no		
Mercury	7439-97-6		11	no		
Nickel	7440-02-0		730	no		
Selenium	7782-49-2		180	no		
Silver	7440-22-4		180	no		
Strontium	7440-24-6		22,000.00	no		
Thallium	7440-28-0		2.6	no		
Vanadium	7440-62-2		180	no		
Zinc	7440-66-6		11,000.00	no		

Cumulative Risk Ratio	**0.012**	**1.5E-04**

blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well
Cumulative Risk Ratio does not include lead
USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224 kb) (revised 05/04/07) located at http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm.

the detected concentration used as EPC

Table J.7.55
Risk Ratio Calculations
AOC 1/7 Well Number MW-2
Groundwater Former SADVA

Nonresidential Well MW-2

COMPOUND	CAS Number	Exposure Point Concentration (µg/L)	USEPA Region 6 Risk-Based Screening Level (µg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
VOLATILES						
2-Butanone	78-93-3		7,100.00	no		
1,1-Dichloroethene	75-35-4		1,200.00	no		
1,2-Dichloroethane	107-06-2		0.12	yes		
1,2-Dichloroethene (total)**	540-59-0		n/a			
cis-1,2-Dichloroethene	156-59-2		61	no		
trans-1,2-Dichloroethene	156-60-5		110	no		
Acetone	67-64-1		5,500.00	no		
Benzene	71-43-2		0.35	yes		
Chlorobenzene	108-90-7		91	no		
Methylene chloride	75-09-2		4.3	yes		
Toluene	108-88-3		2,300.00	no		
Trichloroethene	79-01-6		0.028	yes		
Vinyl chloride	75-01-4		0.015	yes		
Xylenes (total)***	1330-20-7		200	no		
SEMIVOLATILES						
bis(2-Ethylhexyl) phthalate	117-81-7		4.8	yes		
Butyl benzyl phthalate	85-68-7		7,300.00	no		
Carbazole	86-74-8		3.4	yes		
Di-n-butyl phthalate	84-74-2		3,700.00	no		
Diethyl phthalate	84-66-2		29,000.00	no		
Fluoranthene	206-44-0		1,500.00	no		
Pyrene	129-00-0		180	no		
PESTICIDES						
4,4'-DDE	72-55-9		0.2	yes		
4,4'-DDD	72-54-8		0.28	yes		
4,4'-DDT	50-29-3		0.2	yes		
METALS						
Aluminum	7429-90-5		37,000.00	no		
Antimony	7440-36-0		15	no		
Arsenic	7440-38-2	31	0.045	yes	--	6.9E-04
Barium	7440-39-3	356	7,300.00	no	0.049	--
Beryllium	7440-41-7		73	no		
Cadmium	7440-43-9		18	no		
Chromium	7440-47-3	144	54,750.00	no	0.0026	--
Chromium VI	18540-29-9		110	no		
Cobalt	7440-48-4		730	no		
Copper	7440-50-8		1,400.00	no		
Lead	7439-92-1	90	15	no	6.0	--
Manganese	7439-96-5		1,700.00	no		
Mercury	7439-97-6		11	no		
Nickel	7440-02-0		730	no		
Selenium	7782-49-2		180	no		
Silver	7440-22-4		180	no		
Strontium	7440-24-6		22,000.00	no		
Thallium	7440-28-0		2.6	no		
Vanadium	7440-62-2		180	no		
Zinc	7440-66-6		11,000.00	no		

Cumulative Risk Ratio **0.051** **6.9E-04**

blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well
Cumulative Risk Ratio does not include lead
USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224 kb) (revised 05/04/07) located at http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm.

the detected concentration used as EPC

Table J.7.56
Risk Ratio Calculations
AOC 1/7 Well Number MW-3
Groundwater Former SADVA

Nonresidential Well MW-3

COMPOUND	CAS Number	Exposure Point Concentration (µg/L)	USEPA Region 6 Risk-Based Screening Level (µg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
VOLATILES						
2-Butanone	78-93-3		7,100.00	no		
1,1-Dichloroethene	75-35-4		1,200.00	no		
1,2-Dichloroethane	107-06-2		0.12	yes		
1,2-Dichloroethene (total)**	540-59-0		n/a			
cis-1,2-Dichloroethene	156-59-2		61	no		
trans-1,2-Dichloroethene	156-60-5		110	no		
Acetone	67-64-1		5,500.00	no		
Benzene	71-43-2		0.35	yes		
Chlorobenzene	108-90-7		91	no		
Methylene chloride	75-09-2		4.3	yes		
Toluene	108-88-3		2,300.00	no		
Trichloroethene	79-01-6		0.028	yes		
Vinyl chloride	75-01-4		0.015	yes		
Xylenes (total)***	1330-20-7		200	no		
SEMIVOLATILES						
bis(2-Ethylhexyl) phthalate	117-81-7		4.8	yes		
Butyl benzyl phthalate	85-68-7		7,300.00	no		
Carbazole	86-74-8		3.4	yes		
Di-n-butyl phthalate	84-74-2		3,700.00	no		
Diethyl phthalate	84-66-2		29,000.00	no		
Fluoranthene	206-44-0		1,500.00	no		
Pyrene	129-00-0		180	no		
PESTICIDES						
4,4'-DDE	72-55-9		0.2	yes		
4,4'-DDD	72-54-8		0.28	yes		
4,4'-DDT	50-29-3		0.2	yes		
METALS						
Aluminum	7429-90-5		37,000.00	no		
Antimony	7440-36-0		15	no		
Arsenic	7440-38-2	28	0.045	yes	--	6.2E-04
Barium	7440-39-3	187	7,300.00	no	0.026	--
Beryllium	7440-41-7		73	no		
Cadmium	7440-43-9		18	no		
Chromium	7440-47-3	83	54,750.00	no	0.0015	--
Chromium VI	18540-29-9		110	no		
Cobalt	7440-48-4		730	no		
Copper	7440-50-8		1,400.00	no		
Lead	7439-92-1	66	15	no	4.4	--
Manganese	7439-96-5		1,700.00	no		
Mercury	7439-97-6		11	no		
Nickel	7440-02-0		730	no		
Selenium	7782-49-2		180	no		
Silver	7440-22-4		180	no		
Strontium	7440-24-6		22,000.00	no		
Thallium	7440-28-0		2.6	no		
Vanadium	7440-62-2		180	no		
Zinc	7440-66-6		11,000.00	no		

Cumulative Risk Ratio **0.027** **6.2E-04**

blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well
Cumulative Risk Ratio does not include lead
USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224 kb) (revised 05/04/07) located at http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm.

the detected concentration used as EPC

Table J.7.57
Risk Ratio Calculations
AOC 1/7 Well Number MW-4
Groundwater Former SADVA

Nonresidential Well MW-4

COMPOUND	CAS Number	Exposure Point Concentration (µg/L)	USEPA Region 6 Risk-Based Screening Level (µg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
VOLATILES						
2-Butanone	78-93-3		7,100.00	no		
1,1-Dichloroethene	75-35-4		1,200.00	no		
1,2-Dichloroethane	107-06-2		0.12	yes		
1,2-Dichloroethene (total)**	540-59-0		n/a			
cis-1,2-Dichloroethene	156-59-2		61	no		
trans-1,2-Dichloroethene	156-60-5		110	no		
Acetone	67-64-1		5,500.00	no		
Benzene	71-43-2		0.35	yes		
Chlorobenzene	108-90-7		91	no		
Methylene chloride	75-09-2		4.3	yes		
Toluene	108-88-3		2,300.00	no		
Trichloroethene	79-01-6		0.028	yes		
Vinyl chloride	75-01-4		0.015	yes		
Xylenes (total)***	1330-20-7		200	no		
SEMIVOLATILES						
bis(2-Ethylhexyl) phthalate	117-81-7		4.8	yes		
Butyl benzyl phthalate	85-68-7		7,300.00	no		
Carbazole	86-74-8		3.4	yes		
Di-n-butyl phthalate	84-74-2		3,700.00	no		
Diethyl phthalate	84-66-2		29,000.00	no		
Fluoranthene	206-44-0		1,500.00	no		
Pyrene	129-00-0		180	no		
PESTICIDES						
4,4'-DDE	72-55-9		0.2	yes		
4,4'-DDD	72-54-8		0.28	yes		
4,4'-DDT	50-29-3		0.2	yes		
METALS						
Aluminum	7429-90-5		37,000.00	no		
Antimony	7440-36-0		15	no		
Arsenic	7440-38-2	23	0.045	yes	--	5.1E-04
Barium	7440-39-3	232	7,300.00	no	0.032	--
Beryllium	7440-41-7		73	no		
Cadmium	7440-43-9		18	no		
Chromium	7440-47-3	66	54,750.00	no	0.0012	--
Chromium VI	18540-29-9		110	no		
Cobalt	7440-48-4		730	no		
Copper	7440-50-8		1,400.00	no		
Lead	7439-92-1	69	15	no	4.6	--
Manganese	7439-96-5		1,700.00	no		
Mercury	7439-97-6		11	no		
Nickel	7440-02-0		730	no		
Selenium	7782-49-2		180	no		
Silver	7440-22-4		180	no		
Strontium	7440-24-6		22,000.00	no		
Thallium	7440-28-0		2.6	no		
Vanadium	7440-62-2		180	no		
Zinc	7440-66-6		11,000.00	no		
			Cumulative Risk Ratio		**0.033**	**5.1E-04**

blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well
Cumulative Risk Ratio does not include lead

USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224 kb) (revised 05/04/07) located at http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm.

the detected concentration used as EPC

Table J.7.58
Risk Ratio Calculations
AOC 1/7 Well Number AOC7-2AMW-7
Groundwater Former SADVA

Nonresidential Well AOC7-2AMW-7

COMPOUND	CAS Number	Exposure Point Concentration (µg/L)	USEPA Region 6 Risk-Based Screening Level (µg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
VOLATILES						
2-Butanone	78-93-3		7,100.00	no		
1,1-Dichloroethene	75-35-4		1,200.00	no		
1,2-Dichloroethane	107-06-2		0.12	yes		
1,2-Dichloroethene (total)**	540-59-0		n/a			
cis-1,2-Dichloroethene	156-59-2		61	no		
trans-1,2-Dichloroethene	156-60-5		110	no		
Acetone	67-64-1		5,500.00	no		
Benzene	71-43-2		0.35	yes		
Chlorobenzene	108-90-7		91	no		
Methylene chloride	75-09-2		4.3	yes		
Toluene	108-88-3		2,300.00	no		
Trichloroethene	79-01-6		0.028	yes		
Vinyl chloride	75-01-4		0.015	yes		
Xylenes (total)***	1330-20-7		200	no		
SEMIVOLATILES						
bis(2-Ethylhexyl) phthalate	117-81-7	27	4.8	yes	--	5.6E-06
Butyl benzyl phthalate	85-68-7		7,300.00	no		
Carbazole	86-74-8		3.4	yes		
Di-n-butyl phthalate	84-74-2		3,700.00	no		
Diethyl phthalate	84-66-2		29,000.00	no		
Fluoranthene	206-44-0		1,500.00	no		
Pyrene	129-00-0		180	no		
PESTICIDES						
4,4'-DDE	72-55-9		0.2	yes		
4,4'-DDD	72-54-8		0.28	yes		
4,4'-DDT	50-29-3		0.2	yes		
METALS						
Aluminum	7429-90-5	3560	37,000.00	no	0.096	--
Antimony	7440-36-0		15	no		
Arsenic	7440-38-2		0.045	yes		
Barium	7440-39-3	33.8	7,300.00	no	0.0046	--
Beryllium	7440-41-7	0.12	73	no	0.0016	--
Cadmium	7440-43-9		18	no		
Chromium	7440-47-3	4	54,750.00	no	0.000073	--
Chromium VI	18540-29-9		110	no		
Cobalt	7440-48-4		730	no		
Copper	7440-50-8	10.3	1,400.00	no	0.0074	--
Lead	7439-92-1	2	15	no	0.13	--
Manganese	7439-96-5	2700	1,700.00	no	1.6	--
Mercury	7439-97-6		11	no		
Nickel	7440-02-0		730	no		
Selenium	7782-49-2		180	no		
Silver	7440-22-4		180	no		
Strontium	7440-24-6		22,000.00	no		
Thallium	7440-28-0		2.6	no		
Vanadium	7440-62-2	10.1	180	no	0.056	--
Zinc	7440-66-6	22.3	11,000.00	no	0.0020	--

Cumulative Risk Ratio **1.8** **5.6E-06**

blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well
Cumulative Risk Ratio does not include lead

USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224 kb) (revised 05/04/07) located at http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm.

the detected concentration used as EPC

Table J.7.59
Risk Ratio Calculations
AOC 1/7 Well Number AOC7-2AMW-5
Groundwater Former SADVA

Nonresidential Well AOC7-2AMW-5

COMPOUND	CAS Number	Exposure Point Concentration (µg/L)	USEPA Region 6 Risk-Based Screening Level (µg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
VOLATILES						
2-Butanone	78-93-3		7,100.00	no		
1,1-Dichloroethene	75-35-4		1,200.00	no		
1,2-Dichloroethane	107-06-2		0.12	yes		
1,2-Dichloroethene (total)**	540-59-0		n/a			
cis-1,2-Dichloroethene	156-59-2		61	no		
trans-1,2-Dichloroethene	156-60-5		110	no		
Acetone	67-64-1		5,500.00	no		
Benzene	71-43-2		0.35	yes		
Chlorobenzene	108-90-7		91	no		
Methylene chloride	75-09-2		4.3	yes		
Toluene	108-88-3		2,300.00	no		
Trichloroethene	79-01-6		0.028	yes		
Vinyl chloride	75-01-4		0.015	yes		
Xylenes (total)***	1330-20-7		200	no		
SEMIVOLATILES						
bis(2-Ethylhexyl) phthalate	117-81-7	15	4.8	yes	--	3.1E-06
Butyl benzyl phthalate	85-68-7		7,300.00	no		
Carbazole	86-74-8		3.4	yes		
Di-n-butyl phthalate	84-74-2		3,700.00	no		
Diethyl phthalate	84-66-2		29,000.00	no		
Fluoranthene	206-44-0		1,500.00	no		
Pyrene	129-00-0		180	no		
PESTICIDES						
4,4'-DDE	72-55-9		0.2	yes		
4,4'-DDD	72-54-8		0.28	yes		
4,4'-DDT	50-29-3		0.2	yes		
METALS						
Aluminum	7429-90-5	1600	37,000.00	no	0.043	--
Antimony	7440-36-0		15	no		
Arsenic	7440-38-2	14.7	0.045	yes	--	3.3E-04
Barium	7440-39-3	44.6	7,300.00	no	0.0061	--
Beryllium	7440-41-7	0.071	73	no	0.00097	--
Cadmium	7440-43-9		18	no		
Chromium	7440-47-3	1.8	54,750.00	no	0.000033	--
Chromium VI	18540-29-9		110	no		
Cobalt	7440-48-4		730	no		
Copper	7440-50-8		1,400.00	no		
Lead	7439-92-1	5.2	15	no	0.35	--
Manganese	7439-96-5	124	1,700.00	no	0.073	--
Mercury	7439-97-6		11	no		
Nickel	7440-02-0		730	no		
Selenium	7782-49-2	2.3	180	no	0.013	--
Silver	7440-22-4		180	no		
Strontium	7440-24-6		22,000.00	no		
Thallium	7440-28-0		2.6	no		
Vanadium	7440-62-2	4.4	180	no	0.024	--
Zinc	7440-66-6	17.5	11,000.00	no	0.0016	--
			Cumulative Risk Ratio		**0.16**	**3.3E-04**

blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well
Cumulative Risk Ratio does not include lead
USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224 kb) (revised 05/04/07) located at http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm.

the detected concentration used as EPC

Table J.7.60
Risk Ratio Calculations
AOC 1/7 Well Number AOC7-HP01
Groundwater Former SADVA

Nonresidential Well AOC7-HP01

COMPOUND	CAS Number	Exposure Point Concentration (µg/L) [a]	USEPA Region 6 Risk-Based Screening Level (µg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
VOLATILES						
2-Butanone	78-93-3		7,100.00	no		
1,1-Dichloroethene	75-35-4		1,200.00	no		
1,2-Dichloroethane	107-06-2		0.12	yes		
1,2-Dichloroethene (total)**	540-59-0		n/a			
cis-1,2-Dichloroethene	156-59-2		61	no		
trans-1,2-Dichloroethene	156-60-5		110	no		
Acetone	67-64-1	4.2	5,500.00	no	0.00076	--
Benzene	71-43-2		0.35	yes		
Chlorobenzene	108-90-7		91	no		
Methylene chloride	75-09-2		4.3	yes		
Toluene	108-88-3		2,300.00	no		
Trichloroethene	79-01-6		0.028	yes		
Vinyl chloride	75-01-4		0.015	yes		
Xylenes (total)***	1330-20-7		200	no		
SEMIVOLATILES						
bis(2-Ethylhexyl) phthalate	117-81-7	69	4.8	yes	--	1.4E-05
Butyl benzyl phthalate	85-68-7		7,300.00	no		
Carbazole	86-74-8		3.4	yes		
Di-n-butyl phthalate	84-74-2		3,700.00	no		
Diethyl phthalate	84-66-2		29,000.00	no		
Fluoranthene	206-44-0		1,500.00	no		
Pyrene	129-00-0		180	no		
PESTICIDES						
4,4'-DDE	72-55-9		0.2	yes		
4,4'-DDD	72-54-8		0.28	yes		
4,4'-DDT	50-29-3		0.2	yes		
METALS						
Aluminum	7429-90-5	5940	37,000.00	no	0.16	--
Antimony	7440-36-0		15	no		
Arsenic	7440-38-2	4.8	0.045	yes	--	1.1E-04
Barium	7440-39-3	85	7,300.00	no	0.012	--
Beryllium	7440-41-7	0.41	73	no	0.0056	--
Cadmium	7440-43-9		18	no		
Chromium	7440-47-3	11.9	54,750.00	no	0.00022	--
Chromium VI	18540-29-9		110	no		
Cobalt	7440-48-4	3.8	730	no	0.0052	--
Copper	7440-50-8	13.8	1,400.00	no	0.0099	--
Lead	7439-92-1	4.9	15	no	0.33	--
Manganese	7439-96-5	461	1,700.00	no	0.27	--
Mercury	7439-97-6	0.069	11	no	0.0063	--
Nickel	7440-02-0	12.4	730	no	0.017	--
Selenium	7782-49-2		180	no		
Silver	7440-22-4		180	no		
Strontium	7440-24-6		22,000.00	no		
Thallium	7440-28-0		2.6	no		
Vanadium	7440-62-2	15.8	180	no	0.088	--
Zinc	7440-66-6	56.9	11,000.00	no	0.0052	--
			Cumulative Risk Ratio		**0.58**	**1.2E-04**

blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well
Cumulative Risk Ratio does not include lead
USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224

a - value is the highest of the primary sample or the duplicate sample at the well

Table J.7.61
Risk Ratio Calculations
AOC 1/7 Well Number AOC7-HP02
Groundwater Former SADVA

Nonresidential Well AOC7-HP02

COMPOUND	CAS Number	Exposure Point Concentration (µg/L)	USEPA Region 6 Risk-Based Screening Level (µg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
VOLATILES						
2-Butanone	78-93-3		7,100.00	no		
1,1-Dichloroethene	75-35-4		1,200.00	no		
1,2-Dichloroethane	107-06-2		0.12	yes		
1,2-Dichloroethene (total)**	540-59-0		n/a			
cis-1,2-Dichloroethene	156-59-2		61	no		
trans-1,2-Dichloroethene	156-60-5		110	no		
Acetone	67-64-1	2.4	5,500.00	no	0.00044	--
Benzene	71-43-2		0.35	yes		
Chlorobenzene	108-90-7		91	no		
Methylene chloride	75-09-2		4.3	yes		
Toluene	108-88-3		2,300.00	no		
Trichloroethene	79-01-6		0.028	yes		
Vinyl chloride	75-01-4		0.015	yes		
Xylenes (total)***	1330-20-7		200	no		
SEMIVOLATILES						
bis(2-Ethylhexyl) phthalate	117-81-7	100	4.8	yes	--	2.1E-05
Butyl benzyl phthalate	85-68-7		7,300.00	no		
Carbazole	86-74-8		3.4	yes		
Di-n-butyl phthalate	84-74-2		3,700.00	no		
Diethyl phthalate	84-66-2		29,000.00	no		
Fluoranthene	206-44-0		1,500.00	no		
Pyrene	129-00-0		180	no		
PESTICIDES						
4,4'-DDE	72-55-9		0.2	yes		
4,4'-DDD	72-54-8		0.28	yes		
4,4'-DDT	50-29-3		0.2	yes		
METALS						
Aluminum	7429-90-5	389000	37,000.00	no	11	--
Antimony	7440-36-0		15	no		
Arsenic	7440-38-2	207	0.045	yes	--	4.6E-03
Barium	7440-39-3	1990	7,300.00	no	0.27	--
Beryllium	7440-41-7	20.7	73	no	0.28	--
Cadmium	7440-43-9	9.1	18	no	0.51	--
Chromium	7440-47-3	544	54,750.00	no	0.0099	--
Chromium VI	18540-29-9		110	no		
Cobalt	7440-48-4	423	730	no	0.58	--
Copper	7440-50-8	989	1,400.00	no	0.71	--
Lead	7439-92-1	388	15	no	26	--
Manganese	7439-96-5	16200	1,700.00	no	9.5	--
Mercury	7439-97-6	0.97	11	no	0.088	--
Nickel	7440-02-0	857	730	no	1.2	--
Selenium	7782-49-2		180	no		
Silver	7440-22-4	4.1	180	no	0.023	--
Strontium	7440-24-6		22,000.00	no		
Thallium	7440-28-0	7.8	2.6	no	3.0	--
Vanadium	7440-62-2	704	180	no	3.9	--
Zinc	7440-66-6	2090	11,000.00	no	0.19	--

Cumulative Risk Ratio **31** **4.6E-03**

blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well
Cumulative Risk Ratio does not include lead
USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224 kb) (revised 05/04/07) located at http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm.

the detected concentration used as EPC

Table J.7.62
Risk Ratio Calculations
AOC 1/7 Well Number AOC7-HPO3
Groundwater Former SADVA

Nonresidential Well AOC7-HP03

COMPOUND	CAS Number	Exposure Point Concentration (µg/L)	USEPA Region 6 Risk-Based Screening Level (µg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
VOLATILES						
2-Butanone	78-93-3		7,100.00	no		
1,1-Dichloroethene	75-35-4		1,200.00	no		
1,2-Dichloroethane	107-06-2		0.12	yes		
1,2-Dichloroethene (total)**	540-59-0		n/a			
cis-1,2-Dichloroethene	156-59-2		61	no		
trans-1,2-Dichloroethene	156-60-5		110	no		
Acetone	67-64-1		5,500.00	no		
Benzene	71-43-2		0.35	yes		
Chlorobenzene	108-90-7		91	no		
Methylene chloride	75-09-2		4.3	yes		
Toluene	108-88-3		2,300.00	no		
Trichloroethene	79-01-6		0.028	yes		
Vinyl chloride	75-01-4		0.015	yes		
Xylenes (total)***	1330-20-7		200	no		
SEMIVOLATILES						
bis(2-Ethylhexyl) phthalate	117-81-7	13	4.8	yes	--	2.7E-06
Butyl benzyl phthalate	85-68-7		7,300.00	no		
Carbazole	86-74-8		3.4	yes		
Di-n-butyl phthalate	84-74-2		3,700.00	no		
Diethyl phthalate	84-66-2		29,000.00	no		
Fluoranthene	206-44-0		1,500.00	no		
Pyrene	129-00-0		180	no		
PESTICIDES						
4,4'-DDE	72-55-9	0.023	0.2	yes	--	1.2E-07
4,4'-DDD	72-54-8	0.035	0.28	yes	--	1.3E-07
4,4'-DDT	50-29-3	0.087	0.2	yes	--	4.4E-07
METALS					--	--
Aluminum	7429-90-5	19600	37,000.00	no	0.53	--
Antimony	7440-36-0		15	no		
Arsenic	7440-38-2	10.2	0.045	yes	--	2.3E-04
Barium	7440-39-3	187	7,300.00	no	0.026	--
Beryllium	7440-41-7	1.2	73	no	0.016	--
Cadmium	7440-43-9		18	no		
Chromium	7440-47-3	31.1	54,750.00	no	0.00057	--
Chromium VI	18540-29-9		110	no		
Cobalt	7440-48-4	15	730	no	0.021	--
Copper	7440-50-8	37.7	1,400.00	no	0.027	--
Lead	7439-92-1	12.1	15	no	0.81	--
Manganese	7439-96-5	989	1,700.00	no	0.58	--
Mercury	7439-97-6	0.067	11	no	0.0061	--
Nickel	7440-02-0	46.5	730	no	0.064	--
Selenium	7782-49-2		180	no		
Silver	7440-22-4		180	no		
Strontium	7440-24-6		22,000.00	no		
Thallium	7440-28-0		2.6	no		
Vanadium	7440-62-2	41.5	180	no	0.23	--
Zinc	7440-66-6	109	11,000.00	no	0.0099	--
			Cumulative Risk Ratio		**1.5**	**2.3E-04**

blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well
Cumulative Risk Ratio does not include lead

USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224 kb) (revised 05/04/07) located at http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm.

the detected concentration used as EPC

Table J.7.63
Risk Ratio Calculations
AOC 1/7 Well Number SD-GW02-AOC7
Groundwater Former SADVA

Nonresidential Well SD-GW02-AOC7

COMPOUND	CAS Number	Exposure Point Concentration (µg/L)	USEPA Region 6 Risk-Based Screening Level (µg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
VOLATILES						
2-Butanone	78-93-3		7,100.00	no		
1,1-Dichloroethene	75-35-4		1,200.00	no		
1,2-Dichloroethane	107-06-2		0.12	yes		
1,2-Dichloroethene (total)**	540-59-0		n/a			
cis-1,2-Dichloroethene	156-59-2		61	no		
trans-1,2-Dichloroethene	156-60-5		110	no		
Acetone	67-64-1		5,500.00	no		
Benzene	71-43-2		0.35	yes		
Chlorobenzene	108-90-7		91	no		
Methylene chloride	75-09-2		4.3	yes		
Toluene	108-88-3		2,300.00	no		
Trichloroethene	79-01-6		0.028	yes		
Vinyl chloride	75-01-4		0.015	yes		
Xylenes (total)***	1330-20-7		200	no		
SEMIVOLATILES						
bis(2-Ethylhexyl) phthalate	117-81-7	16	4.8	yes	--	3.3E-06
Butyl benzyl phthalate	85-68-7		7,300.00	no		
Carbazole	86-74-8		3.4	yes		
Di-n-butyl phthalate	84-74-2		3,700.00	no		
Diethyl phthalate	84-66-2	1.7	29,000.00	no	0.000059	--
Fluoranthene	206-44-0		1,500.00	no		
Pyrene	129-00-0		180	no		
PESTICIDES						
4,4'-DDE	72-55-9		0.2	yes		
4,4'-DDD	72-54-8		0.28	yes		
4,4'-DDT	50-29-3		0.2	yes		
METALS						
Aluminum	7429-90-5	59.9	37,000.00	no	0.0016	--
Antimony	7440-36-0		15	no		
Arsenic	7440-38-2		0.045	yes		
Barium	7440-39-3	197	7,300.00	no	0.027	--
Beryllium	7440-41-7		73	no		
Cadmium	7440-43-9		18	no		
Chromium	7440-47-3		54,750.00	no		
Chromium VI	18540-29-9		110	no		
Cobalt	7440-48-4		730	no		
Copper	7440-50-8		1,400.00	no		
Lead	7439-92-1		15	no		
Manganese	7439-96-5	456	1,700.00	no	0.27	--
Mercury	7439-97-6		11	no		
Nickel	7440-02-0		730	no		
Selenium	7782-49-2		180	no		
Silver	7440-22-4		180	no		
Strontium	7440-24-6		22,000.00	no		
Thallium	7440-28-0		2.6	no		
Vanadium	7440-62-2		180	no		
Zinc	7440-66-6		11,000.00	no		
			Cumulative Risk Ratio		**0.30**	**3.3E-06**

blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well
Cumulative Risk Ratio does not include lead
USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224

the detected concentration used as EPC

Table J.7.64
Risk Ratio Calculations
AOC 1/7 Well Number SD-2AMW5-AOC1
Groundwater Former SADVA

Nonresidential Well DE-2AMW5-AOC1

COMPOUND	CAS Number	Exposure Point Concentration (µg/L)	USEPA Region 6 Risk-Based Screening Level (µg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
VOLATILES						
2-Butanone	78-93-3		7,100.00	no		
1,1-Dichloroethene	75-35-4		1,200.00	no		
1,2-Dichloroethane	107-06-2		0.12	yes		
1,2-Dichloroethene (total)**	540-59-0		n/a			
cis-1,2-Dichloroethene	156-59-2		61	no		
trans-1,2-Dichloroethene	156-60-5		110	no		
Acetone	67-64-1		5,500.00	no		
Benzene	71-43-2		0.35	yes		
Chlorobenzene	108-90-7		91	no		
Methylene chloride	75-09-2		4.3	yes		
Toluene	108-88-3		2,300.00	no		
Trichloroethene	79-01-6		0.028	yes		
Vinyl chloride	75-01-4		0.015	yes		
Xylenes (total)***	1330-20-7		200	no		
SEMIVOLATILES						
bis(2-Ethylhexyl) phthalate	117-81-7	27	4.8	yes	--	5.6E-06
Butyl benzyl phthalate	85-68-7	0.12	7,300.00	no	0.000016	--
Carbazole	86-74-8	0.13	3.4	yes	--	3.8E-08
Di-n-butyl phthalate	84-74-2	0.28	3,700.00	no	0.000076	--
Diethyl phthalate	84-66-2	0.35	29,000.00	no	0.000012	--
Fluoranthene	206-44-0	0.2	1,500.00	no	0.00013	--
Pyrene	129-00-0	0.17	180	no	0.00094	--
PESTICIDES						
4,4'-DDE	72-55-9		0.2	yes		
4,4'-DDD	72-54-8		0.28	yes		
4,4'-DDT	50-29-3		0.2	yes		
METALS						
Aluminum	7429-90-5	79.4	37,000.00	no	0.0021	--
Antimony	7440-36-0		15	no		
Arsenic	7440-38-2	11.6	0.045	yes	--	2.6E-04
Barium	7440-39-3	41.6	7,300.00	no	0.0057	--
Beryllium	7440-41-7		73	no		
Cadmium	7440-43-9		18	no		
Chromium	7440-47-3		54,750.00	no		
Chromium VI	18540-29-9		110	no		
Cobalt	7440-48-4		730	no		
Copper	7440-50-8	4.6	1,400.00	no	0.0033	--
Lead	7439-92-1	1.6	15	no	0.11	--
Manganese	7439-96-5	810	1,700.00	no	0.48	--
Mercury	7439-97-6		11	no		
Nickel	7440-02-0	2	730	no	0.0027	--
Selenium	7782-49-2		180	no		
Silver	7440-22-4		180	no		
Strontium	7440-24-6		22,000.00	no		
Thallium	7440-28-0		2.6	no		
Vanadium	7440-62-2	5.4	180	no	0.030	--
Zinc	7440-66-6	11.6	11,000.00	no	0.0011	--

Cumulative Risk Ratio **0.52** **2.6E-04**

blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well
Cumulative Risk Ratio does not include lead
USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224 kb) (revised 05/04/07) located at http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm.

the detected concentration used as EPC

Table J.7.65
Risk Ratio Calculations
AOC 1/7 Well Number SD-2AMW7-AOC1
Groundwater Former SADVA

Nonresidential Well SD-2AMW7-AOC1

COMPOUND	CAS Number	Exposure Point Concentration (µg/L)	USEPA Region 6 Risk-Based Screening Level (µg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
VOLATILES						
2-Butanone	78-93-3		7,100.00	no		
1,1-Dichloroethene	75-35-4		1,200.00	no		
1,2-Dichloroethane	107-06-2		0.12	yes		
1,2-Dichloroethene (total)**	540-59-0		n/a			
cis-1,2-Dichloroethene	156-59-2		61	no		
trans-1,2-Dichloroethene	156-60-5		110	no		
Acetone	67-64-1		5,500.00	no		
Benzene	71-43-2		0.35	yes		
Chlorobenzene	108-90-7		91	no		
Methylene chloride	75-09-2		4.3	yes		
Toluene	108-88-3		2,300.00	no		
Trichloroethene	79-01-6		0.028	yes		
Vinyl chloride	75-01-4		0.015	yes		
Xylenes (total)***	1330-20-7		200	no		
SEMIVOLATILES						
bis(2-Ethylhexyl) phthalate	117-81-7	4.1	4.8	yes	--	8.5E-07
Butyl benzyl phthalate	85-68-7		7,300.00	no		
Carbazole	86-74-8		3.4	yes		
Di-n-butyl phthalate	84-74-2		3,700.00	no		
Diethyl phthalate	84-66-2	1.6	29,000.00	no	0.000055	--
Fluoranthene	206-44-0		1,500.00	no		
Pyrene	129-00-0		180	no		
PESTICIDES						
4,4'-DDE	72-55-9		0.2	yes		
4,4'-DDD	72-54-8		0.28	yes		
4,4'-DDT	50-29-3		0.2	yes		
METALS						
Aluminum	7429-90-5		37,000.00	no		
Antimony	7440-36-0		15	no		
Arsenic	7440-38-2		0.045	yes		
Barium	7440-39-3	16.3	7,300.00	no	0.0022	--
Beryllium	7440-41-7		73	no		
Cadmium	7440-43-9		18	no		
Chromium	7440-47-3		54,750.00	no		
Chromium VI	18540-29-9		110	no		
Cobalt	7440-48-4		730	no		
Copper	7440-50-8		1,400.00	no		
Lead	7439-92-1		15	no		
Manganese	7439-96-5	135	1,700.00	no	0.079	--
Mercury	7439-97-6		11	no		
Nickel	7440-02-0		730	no		
Selenium	7782-49-2		180	no		
Silver	7440-22-4		180	no		
Strontium	7440-24-6		22,000.00	no		
Thallium	7440-28-0		2.6	no		
Vanadium	7440-62-2	7.6	180	no	0.042	--
Zinc	7440-66-6	6.6	11,000.00	no	0.00060	--
				Cumulative Risk Ratio	**0.12**	**8.5E-07**

blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well
Cumulative Risk Ratio does not include lead

USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224 kb) (revised 05/04/07) located at http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm.

the detected concentration used as EPC

Table J.7.66
Risk Ratio Calculations
AOC 1/7 Well Number SD-GW13-AOC1
Groundwater Former SADVA

Nonresidential Wel SD-GW13-AOC1

COMPOUND	CAS Number	Exposure Point Concentration (µg/L)	USEPA Region 6 Risk-Based Screening Level (µg/L)	Carcinogenic?	Non-Carc Risk Ratio (EPC/USEPA)	Carc Risk Ratio (EPC/USEPA)
VOLATILES						
2-Butanone	78-93-3		7,100.00	no		
1,1-Dichloroethene	75-35-4		1,200.00	no		
1,2-Dichloroethane	107-06-2		0.12	yes		
1,2-Dichloroethene (total)**	540-59-0		n/a			
cis-1,2-Dichloroethene	156-59-2		61	no		
trans-1,2-Dichloroethene	156-60-5		110	no		
Acetone	67-64-1		5,500.00	no		
Benzene	71-43-2		0.35	yes		
Chlorobenzene	108-90-7		91	no		
Methylene chloride	75-09-2		4.3	yes		
Toluene	108-88-3		2,300.00	no		
Trichloroethene	79-01-6		0.028	yes		
Vinyl chloride	75-01-4		0.015	yes		
Xylenes (total)***	1330-20-7		200	no		
SEMIVOLATILES						
bis(2-Ethylhexyl) phthalate	117-81-7		4.8	yes		
Butyl benzyl phthalate	85-68-7		7,300.00	no		
Carbazole	86-74-8		3.4	yes		
Di-n-butyl phthalate	84-74-2	1.1	3,700.00	no	0.00030	--
Diethyl phthalate	84-66-2		29,000.00	no		
Fluoranthene	206-44-0	2.5	1,500.00	no	0.0017	--
Pyrene	129-00-0	0.95	180	no	0.0053	--
PESTICIDES						
4,4'-DDE	72-55-9		0.2	yes		
4,4'-DDD	72-54-8	0.027	0.28	yes	--	9.6E-08
4,4'-DDT	50-29-3	0.014	0.2	yes	--	7.0E-08
METALS					--	--
Aluminum	7429-90-5		37,000.00	no		
Antimony	7440-36-0		15	no		
Arsenic	7440-38-2	3.3	0.045	yes	--	7.3E-05
Barium	7440-39-3	36.5	7,300.00	no	0.0050	--
Beryllium	7440-41-7	0.71	73	no	0.0097	--
Cadmium	7440-43-9		18	no		
Chromium	7440-47-3	7	54,750.00	no	0.00013	--
Chromium VI	18540-29-9		110	no		
Cobalt	7440-48-4		730	no		
Copper	7440-50-8	1.2	1,400.00	no	0.00086	--
Lead	7439-92-1		15	no		
Manganese	7439-96-5	90.2	1,700.00	no	0.053	--
Mercury	7439-97-6		11	no		
Nickel	7440-02-0	2.4	730	no	0.0033	--
Selenium	7782-49-2	8.4	180	no	0.047	--
Silver	7440-22-4		180	no		
Strontium	7440-24-6		22,000.00	no		
Thallium	7440-28-0		2.6	no		
Vanadium	7440-62-2	4.9	180	no	0.027	--
Zinc	7440-66-6	30.6	11,000.00	no	0.0028	--

Cumulative Risk Ratio	**0.16**	**7.3E-05**

blank cells for Exposure Point Concentration indicates the chemical was below detection limits in this well
Cumulative Risk Ratio does not include lead
USEPA Region 6 Risk-Based Screening Levels were obtained from the Downloadable Excel Spreadsheet (Excel format - 1224 kb) (revised 05/04/07) located at http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm.

the detected concentration used as EPC

APPENDIX C

COST ESTIMATES

Appendix C
Cost Calculations for Alternative 2 - MNA/Land Use Controls
AOC 1

Operation & Maintenance Costs					
Item	**Cost Item/Description**	**Unit**	**Quantity**	**Unit Cost**	**Total Cost**
Institutional Controls (Years 1 through 30)					
1	Project Management and Administration [1]	LS	1	$4,000	$4,000
2	Institutional Controls [1,2]	LS	1	$9,000	$9,000
	Subtotal				**$13,000**
3	Contingency (% of the total)	15%			$1,950
	Subtotal of Institutional Controls				**$14,950**
Monitored Natural Attenuation (Years 1,2,3,4,5, 10, 15, 20, 25, 30, 35, 40, 45, 50)					
4	Project Management, Administration, and Reporting[1]	LS	1	$6,000	$6,000
5	Monitored Natural Attenuation[1]	LS	1	$10,000	$10,000
	Subtotal				**$16,000**
6	Contingency (% of the total)	15%			$2,400
	Subtotal of MNA				**$18,400**

Notes:
1) Parsons' estimate based on previous projects

2) Land Use controls do not include installation of a vapor intrusion system. Installation costs are dependent on the size of the proposed building(s) and would be paid by the building owner.

Appendix C
Cost Calculations for Alternative 2, Continued

PRESENT VALUE CALCULATION			Annual Discount Factor =		7.0%	
YEAR	**CAPITAL COSTS**	**O&M COSTS**	**PERIODIC COSTS**	**TOTAL COST**	**DISCOUNT FACTOR (7%)**	**PRESENT VALUE**
1	$0	$33,350	$0	$33,350	1.000	$33,350
2	$0	$33,350	$0	$33,350	0.935	$31,168
3	$0	$33,350	$0	$33,350	0.873	$29,129
4	$0	$33,350	$0	$33,350	0.816	$27,224
5	$0	$33,350	$0	$33,350	0.763	$25,443
				$0	0.713	$0
				$0		$0
6	$0	$15,600	$0	$15,600		$0
7	$0	$15,600	$0	$15,600	0.666	$10,395
8	$0	$15,600	$0	$15,600	0.623	$9,715
9	$0	$15,600	$0	$15,600	0.582	$9,079
10	$0	$33,350	$0	$33,350	0.544	$18,140
11	$0	$15,600	$0	$15,600	0.508	$7,930
12	$0	$15,600	$0	$15,600	0.475	$7,411
13	$0	$15,600	$0	$15,600	0.444	$6,927
14	$0	$15,600	$0	$15,600	0.415	$6,473
15	$0	$33,350	$0	$33,350	0.388	$12,934
16	$0	$15,600	$0	$15,600	0.362	$5,654
17	$0	$15,600	$0	$15,600	0.339	$5,284
18	$0	$15,600	$0	$15,600	0.317	$4,939
19	$0	$15,600	$0	$15,600	0.296	$4,615
20	$0	$33,350	$0	$33,350	0.277	$9,222
21	$0	$15,600	$0	$15,600	0.258	$4,031
22	$0	$15,600	$0	$15,600	0.242	$3,768
23	$0	$15,600	$0	$15,600	0.226	$3,521
24	$0	$15,600	$0	$15,600	0.211	$3,291
25	$0	$33,350	$0	$33,350	0.197	$6,575
26	$0	$15,600	$0	$15,600	0.184	$2,874
27	$0	$15,600	$0	$15,600	0.172	$2,686
28	$0	$15,600	$0	$15,600	0.161	$2,511
29	$0	$15,600	$0	$15,600	0.150	$2,346
30	$0	$33,350	$0	$33,350	0.141	$4,688
31	$0	$0	$0	$0	0.131	$0
32	$0	$0	$0	$0	0.123	$0
33	$0	$0	$0	$0	0.115	$0
34	$0	$0	$0	$0	0.107	$0
35	$0	$18,400	$0	$18,400	0.100	$1,844
36	$0	$0	$0	$0	0.094	$0
37	$0	$0	$0	$0	0.088	$0
38	$0	$0	$0	$0	0.082	$0
39	$0	$0	$0	$0	0.076	$0
40	$0	$18,400	$0	$18,400	0.071	$1,315
41	$0	$0	$0	$0	0.067	$0
42	$0	$0	$0	$0	0.062	$0
43	$0	$0	$0	$0	0.058	$0
44	$0	$0	$0	$0	0.055	$0
45	$0	$18,400	$0	$18,400	0.051	$937
46	$0	$0	$0	$0	0.048	$0
47	$0	$0	$0	$0	0.044	$0
48	$0	$0	$0	$0	0.042	$0
49	$0	$0	$0	$0	0.039	$0
50	$0	$18,400	$0	$18,400	0.036	$668
TOTAL	**$0**	**$719,100**	**$0**	**$719,100**	**---**	**$306,088**

Appendix C
Cost Calculations for Alternative 3 - MNA/Cap-Cover/Land Use Controls
AOC 1

Item	Cost Item/Description	Unit	Quantity	Unit Cost	Total Cost
Capital Costs - Year 1					
1.0	***Mobilization/Site Preparation***				
1.1	Plans/Methods Statement/Permits[1]	LS	1	$55,000	$55,000
1.2	Office Trailers/Furniture/Equipment/Utilities	LS	1	$10,000	$10,000
1.3	Mobilize Equipment and Workers	LS	1	$10,000	$10,000
1.4	Temporary Fencing/Erosion Control/Clearing and Grubbing	LS	1	$25,000	$25,000
1.5	Surveying	LS	1	$10,000	$10,000
1.6	Health and Safety Equipment/Supplies (Assume Level D)	LS	1	$30,000	$30,000
1.7	Decontamination Pad/Site Haul Roads/Turnarounds	LS	1	$30,000	$30,000
	Task Subtotal				**$170,000**
2.0	***Placement of Cover Material (over 8-acre area)***				
2.1	Importing & Placement of cover fill materia[2]	CY	13,174	$15	$197,610
2.2	Topsoil (6")	CY	6,587	$25	$164,675
2.3	Grading & Seeding	acre	8	$2,500	$20,000
	Task Subtotal				**$382,285**
3.0	***Impermeable Landfill Cap (2.5-acre area)*** [3]				
3.2	Predesign investigation	LS	1	$50,000	$50,000
3.3	Landfill Cap Design	LS	1	$90,000	$90,000
3.4	Subbase (6")	CY	2,042	$3	$5,616
3.5	Geocomposite Gas Vent Layer	SY	12,250	$6.5	$79,625
3.6	40-mil LLDPE Textured Geomembrane	SY	12,250	$6.5	$79,625
3.7	Geocomposite Drainage Later	SY	12,250	$7.0	$85,750
3.8	Barrier Protection Layer (24")	CY	8,167	$18	$147,006
3.9	Topsoil (6")	CY	2,042	25	$51,050
3.10	Grading and Seeding	acre	2.5	$2,500	$6,250
3.11	Erosion Control Fabric	SY	12,250	$1.5	$18,375
	Task Subtotal				**$613,297**
4.0	***Demobilization***				
4.1	Removal of Temporary Fencing, Erosion Controls, Utilities, Trailers	LS	1	$7,000	$7,000
4.2	Demobilization of Workers, Equipment, Extra Materials	LS	1	$5,000	$5,000
	Task Subtotal				**$12,000**
	Subtotal				**$1,177,582**
	Engineering/Oversight (10% of the total)				$117,758
	Contingency (15% of the total)				$176,637
	Subtotal				**$1,471,977**
	Total Capital Cost (Year 1)				**$1,472,000**

Cost Calculations for Alternative 3, Continued

Item	Cost Item/Description	Unit	Quantity	Unit Cost	Total Cost
Operation & Maintenance Costs					
Cap Maintenance and Monitoring (Years 1 through 30)					
1	Project Management, Administration, and Reporting	LS	1	$6,000	$6,000
2	Cap/cover Maintenance and Monitoring	Acre	10.5	$3,000	$31,500
	Subtotal				**$37,500**
3	Contingency (% of the total)	15%			$5,625
4	Technical Support/Troubleshooting (% of total and contingency)	10%			$4,313
	Subtotal Cap Costs				**$47,438**
Institutional Controls (Years 1 through 30) (5,6)					
5	Project Management and Administration	LS	1	$4,000	$4,000
6	Institutional Controls	LS	1	$9,000	$9,000
	Subtotal				**$13,000**
7	Contingency (% of the total)	15%			$1,950
	Subtotal IC Costs				**$14,950**
Monitored Natural Attenuation (Years 1,2,3,4,5, 10, 15, 20, 25, 30, 35, 40, 45, 50) (5)					
8	Project Management, Administration, and Reporting	LS	1	$6,000	$6,000
9	Monitored Natural Attenuation	LS	1	$10,000	$10,000
	Subtotal				**$16,000**
10	Contingency (% of the total)	15%			$2,400
	Subtotal MNA Costs				**$18,400**

Notes:
1) Plans include design plans for cover and cap, Health and safety plan, Quality Assurance/Quality Control Plans, and Sampling and Analysis Plans
2) Assumes 1 foot of clean material will be backfilled
3) Impermeable cap estimates based on several design cost estimates from previous proposals for Upstate New York sites received by Parsons
4) Estimate based on quote from Acqua Bella regarding a carbon treatment system to treat pond water
5) Parsons' estimate based on previous projects
6) Land Use controls do not include installation of a vapor intrusion system. Installation costs are dependent on the size of the proposed building(s)

Appendix C
Cost Calculations for Alternative 3, Continued

PRESENT VALUE CALCULATION			Annual Discount Factor =		7.0%	
YEAR	CAPITAL COSTS	O&M COSTS	PERIODIC COSTS	TOTAL COST	DISCOUNT FACTOR (7%)	PRESENT VALUE
1	$1,472,000	$80,788	$0	$1,552,788	1.000	$1,552,788
2	$0	$80,788	$0	$80,788	0.935	$75,502
3	$0	$80,788	$0	$80,788	0.873	$70,563
4	$0	$80,788	$0	$80,788	0.816	$65,947
5	$0	$80,788	$0	$80,788	0.763	$61,632
6	$0	$62,388	$0	$62,388	0.713	$44,481
7	$0	$62,388	$0	$62,388	0.666	$41,571
8	$0	$62,388	$0	$62,388	0.623	$38,852
9	$0	$62,388	$0	$62,388	0.582	$36,310
10	$0	$80,788	$0	$80,788	0.544	$43,943
11	$0	$62,388	$0	$62,388	0.508	$31,715
12	$0	$62,388	$0	$62,388	0.475	$29,640
13	$0	$62,388	$0	$62,388	0.444	$27,701
14	$0	$62,388	$0	$62,388	0.415	$25,889
15	$0	$80,788	$0	$80,788	0.388	$31,331
16	$0	$62,388	$0	$62,388	0.362	$22,612
17	$0	$62,388	$0	$62,388	0.339	$21,133
18	$0	$62,388	$0	$62,388	0.317	$19,750
19	$0	$62,388	$0	$62,388	0.296	$18,458
20	$0	$80,788	$0	$80,788	0.277	$22,338
21	$0	$62,388	$0	$62,388	0.258	$16,122
22	$0	$62,388	$0	$62,388	0.242	$15,067
23	$0	$62,388	$0	$62,388	0.226	$14,082
24	$0	$62,388	$0	$62,388	0.211	$13,160
25	$0	$80,788	$0	$80,788	0.197	$15,927
26	$0	$62,388	$0	$62,388	0.184	$11,495
27	$0	$62,388	$0	$62,388	0.172	$10,743
28	$0	$62,388	$0	$62,388	0.161	$10,040
29	$0	$62,388	$0	$62,388	0.150	$9,383
30	$0	$80,788	$0	$80,788	0.141	$11,356
31	$0	$0	$0	$0	0.131	$0
32	$0	$0	$0	$0	0.123	$0
33	$0	$0	$0	$0	0.115	$0
34	$0	$0	$0	$0	0.107	$0
35	$0	$18,400	$0	$18,400	0.100	$1,844
36	$0	$0	$0	$0	0.094	$0
37	$0	$0	$0	$0	0.088	$0
38	$0	$0	$0	$0	0.082	$0
39	$0	$0	$0	$0	0.076	$0
40	$0	$18,400	$0	$18,400	0.071	$1,315
41	$0	$0	$0	$0	0.067	$0
42	$0	$0	$0	$0	0.062	$0
43	$0	$0	$0	$0	0.058	$0
44	$0	$0	$0	$0	0.055	$0
45	$0	$18,400	$0	$18,400	0.051	$937
46	$0	$0	$0	$0	0.048	$0
47	$0	$0	$0	$0	0.044	$0
48	$0	$0	$0	$0	0.042	$0
49	$0	$0	$0	$0	0.039	$0
50	$0	$18,400	$0	$18,400	0.036	$668
TOTAL	**$1,472,000**	**$2,129,225**	**$0**	**$3,601,225**	**---**	**$2,414,296**

Appendix C
Cost Calculations for Alternative 3, Continued

Soil Cover Calcs [1]							
Area	length (ft)	width (ft)	Area (SF)	depth of cover (ft)	**Volume (CY)**	Depth of topsoil (ft)	**Volume (CY)**
A1	80	275	22,000	1	**815**	0.5	**407**
A2	780	250	195,000	1	**7,222**	0.5	**3611**
A3	250	205	50,050	1	**1,854**	0.5	**927**
A4	625	110	68,750	1	**2,546**	0.5	**1273**
A5	170	110	18,700	1	**693**	0.5	**346**
A6 [2]	350	315	110,250	N/A	N/A	N/A	N/A
A7			1,200	1	**44**	0.5	**22**
Sum - cover			**355,700**	**1**	**13,174**	**0.5**	**6,587**

Note:
1. Cover does not include Area A6, which will be encapsulated with a landfill cap.
2. Impermeable cap estimates based on several design cost estimates from a previous proposal received by Parsons

Appendix C
Cost Calculations for Alternative 4 - Soil Cover,
Chemical Oxidation of Groundwater and Land Use Controls AOC 1

Item	Cost Item/Description	Unit	Quantity	Unit Cost	Total Cost
Capital Costs - Year 1					
1.0	***Mobilization/Site Preparation***				
1.1	Plans/Methods Statement/Permits[1]	LS	1	$55,000	$55,000
1.2	Office Trailers/Furniture/Equipment/Utilities	LS	1	$10,000	$10,000
1.3	Mobilize Equipment and Workers	LS	1	$10,000	$10,000
1.4	Temporary Fencing/Erosion Control/Clearing and Grubbing	LS	1	$25,000	$25,000
1.5	Surveying	LS	1	$10,000	$10,000
1.6	Health and Safety Equipment/Supplies (Assume Level D)	LS	1	$30,000	$30,000
1.7	Decontamination Pad/Site Haul Roads/Turnarounds	LS	1	$30,000	$30,000
	Task Subtotal				**$170,000**
2.0	***Placement of Cover Material - Landfill (over 8-acre area)***				
2.1	Importing & Placement of cover fill material[2]	CY	13,174	$15	$197,610
2.2	Topsoil (6")	CY	6,587	$25	$164,675
2.3	Grading & Seeding	acre	8	$2,500	$20,000
	Task Subtotal				**$382,285**
3.0	***Placement of Impermeable Landfill Cap (2.5-acre area)*** [3]				
3.1	Predesign investigation	LS	1	$50,000	$50,000
3.2	Landfill Cap Design	LS	1	$90,000	$90,000
3.3	Subbase (6")	CY	2,042	$3	$5,616
3.4	Geocomposite Gas Vent Layer	SY	12,250	$6.5	$79,625
3.5	40-mil LLDPE Textured Geomembrane	SY	12,250	$6.5	$79,625
3.6	Geocomposite Drainage Later	SY	12,250	$7.0	$85,750
3.7	Barrier Protection Layer (24")	CY	8,167	$18	$147,006
3.8	Topsoil (6")	CY	2,042	25	$51,050
3.9	Grading and Seeding	acre	2.5	$2,500	$6,250
3.10	Erosion Control Fabric	SY	12,250	$1.5	$18,375
	Task Subtotal				**$613,297**
4.0	***Chemical Oxidation of Groundwater*** [4]				
4.1	ISCO Pilot Test (includes Mobilization, application, oversight, health and safety, and reporting)	LS	1	$50,875	$50,875
4.2	Full Scale Remediation (includes mobilization, application, oversight, health and safety, and reporting)	LS	1	$242,500	$242,500
4.3	Sampling	LS	1	$5,000	$5,000
	Task Subtotal				**$298,375**
5.0	***Demobilization***				
5.1	Removal of Temporary Fencing, Erosion Controls, Utilities, Trailers	LS	1	$7,000	$7,000
5.2	Demobilization of Workers, Equipment, Extra Materials	LS	1	$5,000	$5,000
	Task Subtotal				**$12,000**
	Subtotal				**$1,475,957**
	Engineering/Oversight (10%)				$147,596
	Contingency (15%)				$221,393
	Subtotal				**$1,844,946**
	Total Capital Costs (Year 1)				**$1,845,000**

Cost Calculations for Alternative 4, Continued

Item	Cost Item/Description	Unit	Quantity	Unit Cost	Total Cost
Operation & Maintenance Costs					
Cap Maintenance and Monitoring (Years 1 through 30) [6]					
1	Project Management, Administration, and Reporting	LS	1	$6,000	$6,000
2	Cap/cover Maintenance and Monitoring	Acre	10.5	$3,000	$31,500
	Subtotal				**$37,500**
3	Contingency (% of the total)	15%			$5,625
4	Technical Support/Troubleshooting (% of total and contingency)	10%			$4,313
	Subtotal Cap Costs				**$47,438**
Institutional Controls (Years 1 through 30) [6,7]					
5	Project Management and Administration	LS	1	$4,000	$4,000
6	Institutional Controls	LS	1	$9,000	$9,000
	Subtotal				**$13,000**
7	Contingency (% of the total)	15%			$1,950
	Subtotal IC Costs				**$14,950**
	Subtotal Annual O&M Costs (Years 1 through 30)				**$62,388**

Notes:
1) Plans include design plans for cover and cap, Health and safety plan, Quality Assurance/Quality Control Plans, and Sampling and Analysis Plans
2) Assumes 1 foot of clean material will be backfilled
3) Impermeable cap estimates based on several design cost estimates from previous proposals for Upstate New York sites received by Parsons
4) Chemical oxidations costs based on proposal for services from In-Situ Oxidative Technologies Inc. (ISOTEC)
5) Estimate based on quote from Acqua Bella regarding a carbon treatment system to treat pond water
6) Parsons' estimate based on previous projects
7) Land Use controls do not include installation of a vapor intrusion system. Installation costs are dependent on the size of the proposed building(s) and would be paid by the building owner.

Appendix C
Cost Calculations for Alternative 4, Continued

PRESENT VALUE CALCULATION			Annual Discount Factor =		7.0%	
YEAR	CAPITAL COSTS	O&M COSTS	PERIODIC COSTS	TOTAL COST	DISCOUNT FACTOR (7%)	PRESENT VALUE
1	$1,845,000	$62,388	$0	$1,907,388	1.000	$1,907,388
2	$0	$62,388	$0	$62,388	0.935	$58,306
3	$0	$62,388	$0	$62,388	0.873	$54,492
4	$0	$62,388	$0	$62,388	0.816	$50,927
5	$0	$62,388	$0	$62,388	0.763	$47,595
6	$0	$62,388	$0	$62,388	0.713	$44,481
7	$0	$62,388	$0	$62,388	0.666	$41,571
8	$0	$62,388	$0	$62,388	0.623	$38,852
9	$0	$62,388	$0	$62,388	0.582	$36,310
10	$0	$62,388	$0	$62,388	0.544	$33,935
11	$0	$62,388	$0	$62,388	0.508	$31,715
12	$0	$62,388	$0	$62,388	0.475	$29,640
13	$0	$62,388	$0	$62,388	0.444	$27,701
14	$0	$62,388	$0	$62,388	0.415	$25,889
15	$0	$62,388	$0	$62,388	0.388	$24,195
16	$0	$62,388	$0	$62,388	0.362	$22,612
17	$0	$62,388	$0	$62,388	0.339	$21,133
18	$0	$62,388	$0	$62,388	0.317	$19,750
19	$0	$62,388	$0	$62,388	0.296	$18,458
20	$0	$62,388	$0	$62,388	0.277	$17,251
21	$0	$62,388	$0	$62,388	0.258	$16,122
22	$0	$62,388	$0	$62,388	0.242	$15,067
23	$0	$62,388	$0	$62,388	0.226	$14,082
24	$0	$62,388	$0	$62,388	0.211	$13,160
25	$0	$62,388	$0	$62,388	0.197	$12,299
26	$0	$62,388	$0	$62,388	0.184	$11,495
27	$0	$62,388	$0	$62,388	0.172	$10,743
28	$0	$62,388	$0	$62,388	0.161	$10,040
29	$0	$62,388	$0	$62,388	0.150	$9,383
30	$0	$62,388	$0	$62,388	0.141	$8,769
TOTAL	**$1,845,000**	**$1,871,625**	**$0**	**$3,716,625**	**---**	**$2,673,361**

Appendix C
Cost Calculations for Alternative 4, Continued

Soil Cover Calcs [1]

Area	length (ft)	width (ft)	Area (SF)	depth of cover (ft)	**Volume (CY)**	Depth of topsoil (ft)	**Volume (CY)**
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A2	780	250	195,000	1	**7,222**	0.5	**3611**
A3	250	205	50,050	1	**1,854**	0.5	**927**
A4	625	110	68,750	1	**2,546**	0.5	**1273**
A5	170	110	18,700	1	**693**	0.5	**346**
A6 [2]	350	315	110,250	N/A	N/A	N/A	N/A
A7			1,200	1	**44**	0.5	**22**
Sum - cover			**355,700**	**1**	**13,174**	**0.5**	**6,587**

Note:
1 - cover does not include Area A6, which will be encapsulated with a landfill cap.
2 - Impermeable cap estimates based on several design cost estimates from a previous proposal received by Parsons for landfill cap

Groundwater Calculations

Chemical oxidation costs are derived from a proposal provided to Parsons by ISOTEC to remove organic compounds from the groundwater plume